SEQ Water and Wastewater Distribution/Retail Activities

Market Factors Analysis

A report to the Queensland Competition Authority

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In conducting the analysis in the report Synergies has used information available at the date of publication, noting that the intention of this work is to provide material relevant to the development of policy.

Mark Christensen is a Principal with Synergies and is also a member of the Queensland Competition Authority. Mark has had no involvement in the preparation of this report.

Executive Summary

Synergies has been asked to provide the Queensland Competition Authority (QCA) with a high level description of the physical and market characteristics of the water supply and wastewater distribution and retail activities in SEQ, and an economic analysis of the issues for access and price regulation. This includes an analysis of the potential the three new Distribution Businesses to exercise market power. For the purpose of this report, we have labeled these three businesses as follows:

- DB North – which comprises Sunshine Coast and Moreton Bay council areas;
- DB Central – comprising Brisbane, Scenic Rim, Ipswich, Somerset and Lockyer Valley council areas;
- DB South – comprising Gold Coast, Logan and Redland.

The QCA's terms of reference for this task require Synergies to document prevailing and likely market conditions (including by geography and customer groups) with a particular focus on the demand and supply of water and wastewater, and other factors relevant to the potential exercise of market power by each new business.

This report has been developed over a short timeframe, and has drawn heavily from publicly available information. In some cases, we have been constrained by the availability of information. It is also worth noting that some key policy issues and legislation are yet to be finalised in relation to these Distribution Businesses.

Demand and supply of water and wastewater

Stocktake of current prices

Existing water supply charges have the following features:

- two-part tariffs are used in all areas for water supply, with many councils adopting inclining block tariffs;
- residential users pay sewerage charges on a per property basis, while non-residential users pay on a different basis (usually per pedestal);
- separate trade waste charges are commonly applied, and are differentiated by the volume of waste discharged, and in some instances by quality. In other cases, enterprise type is used as a proxy for volume and quality, using general categorisations;
- infrastructure charges apply in relation to new development and expansions to the service footprint;
- postage stamp pricing occurs across council areas for user tariffs, although some councils have retained charges based on pre-amalgamation boundaries. In contrast infrastructure charges are not set uniformly across council areas, but separate prices relate to different service areas ; and
- residential water charges are often set at a discount to commercial and industrial users, and sewerage charges for some community and other organisations are often heavily discounted.

The tables below describe the residential tariffs against the number of discrete service areas.

Summary of tariff structure – residential charges

Distribution business	Council area	Basis of access charge	Nature of consumption charge	Number of residential tariffs	Total number of supply zones
DB Central	Brisbane	Per connection [a]	Inclining block (3 tiers)	1	3
	Scenic Rim	Per connection [a]	Single charge	1	6
	Ipswich	Per connection [a]	Inclining block (3 tiers)	1	1
	Somerset	Per connection,	Inclining block (2 tiers)	1	7
	Lockyer Valley	Per connection	Inclining block (2 tiers)	3	1
TOTAL				**7**	**18**
DB South	Gold Coast	Per connection	Single charge	1	3
	Logan	Size of connection	Single charge	3	2
	Redland	Size of connection	Inclining block (3 tiers)	1	4
TOTAL				**5**	**9**
DB North	Sunshine Coast	Per connection [a]	Inclining block (2 tiers)	1	5
	Moreton Bay	Per connection	Inclining block (3 tiers)	3	6
TOTAL				**4**	**11**

a assumed to be charged per premise. No specific information found in council's charges schedule.

Notes:

Lockyer Valley Regional Council, Logan City Council and Moreton Bay Regional Council charge different access charges for different areas, which largely relate to pre-amalgamation boundaries. However, the same consumption charges.

In many cases, access charges also apply to vacant land or unconnected property.

Supply zones include those connected to bulk transport infrastructure, as well as remote supply areas.

Source: Synergies, Cardno, QCA information and publicly available Council information.

Summary of residential sewerage tariffs

Distribution business	Council area	Tariff structure	Number of tariffs	Number of wastewater systems
DB Central	Brisbane City Council	Per property	1	9
	Scenic Rim Regional Council	Per property [a]	n/a	8
	Ipswich City Council	Per property [a]	n/a	4
	Somerset Regional Council	Per property	4 [b]	6
	Lockyer Valley Regional Council	Per property	1 [c]	4
DB South	Gold Coast City Council	Per property	1	4
	Logan City Council	Per property [b]	1	1
	Redland City Council	Refer note 1.	1	7
DB North	Sunshine Coast Regional Council	Per property [d]	n/a	13
	Moreton Bay Regional Council	Per property	3 [e]	8

a Information obtained from WSAA (2009), Annual performance report 2007/08

b Somerset Regional Council charges either per pedestal on premise or per vacant allotment. These charges differ between Lowood, Fernvale, Esk, Toogoolawah and the district of Kilcoy.

c Although not entirely clear from published information, it appears that a single sewerage charge applies across the council.

d Information obtained from Queensland Treasury (2003), Seventh annual report to the National Competition Council. Attachment 6.

e Different charges apply for Caboolture, Pine Rivers and Redcliffe based on pre-amalgamation areas.

n/a – not available from search of publicly available information

Notes.

1. Charges in Redland refer to 'sewer units'. This would appear to have the effect of charging residential customers on a per property basis, and commercial users on a per pedestal basis, however this is not clear from the published information.

Source: Publicly available Council information, WSAA (2009) National Performance Report 2007/08 and QLD Treasury (2003).

Source: Synergies, Cardno, QCA information and publicly available Council information.

The draft guideline published by the Department of Infrastructure and Planning[1] suggests that infrastructure charges reflect the new average cost of a discrete service area, after future augmentation and incorporating demand growth (in NPV terms).

These charges vary within council areas and between councils. These charges are levied on developers, rather than water users, to recover the costs associated with 'trunk' infrastructure identified in a PIP and Infrastructure Charges Schedule (ICS). Trunk infrastructure relates to common infrastructure upstream of the development.

There are a number of notable distinctions between infrastructure charges and user tariffs in SEQ:

[1] Department of Infrastructure and Planning. IPA Infrastructure Guideline 2/08 – Infrastructure charges schedule. Working draft, December (2008). p18

- infrastructure charges are typically set on a catchment of service area basis, whereas user tariffs are set across entire council boundaries encompassing a number of different service areas;
- infrastructure charges are payable by developers, whereas user tariffs are paid by users;[2]
- infrastructure charges relate to capital costs, whereas user tariffs relate to capital and operating costs; and
- infrastructure charges are set based on the replacement cost of the existing network, yet user tariffs are likely to be set using a different asset valuation.[3]

It is therefore difficult to reconcile any relationship between the two sets of charges, although they are both clearly dealing with existing assets.

Historic and projected volumes

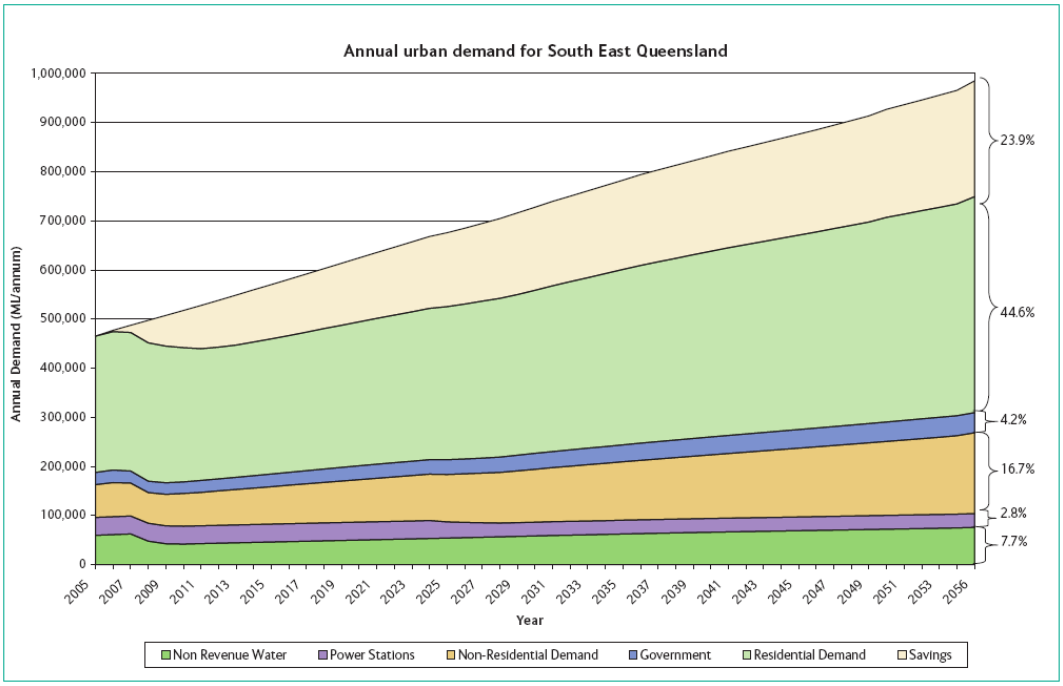
Residential water use accounts for approximately 70% of total demand. Among non-residential use (including commercial, industrial and government sectors), 58% of use is from larger (>10MLpa) water users.

The QWC has forecast the following growth in water use, incorporating significant reductions in water use from permanent conservation measures.

[2] Although it is arguable that infrastructure charges are incorporated into the value of the users land.

[3] For example, DORC or another value set by the Minister.

QWC Demand Forecast (excluding rural water demand)



Source: Queensland Water Commission. Draft South East Queensland Water Strategy.

We were not able to find other publicly available information about historic or forecast demand for wastewater services, although infrastructure planning processes have identified the need for a number of new wastewater systems (sewer network and treatment plant) to service urban growth areas. These systems are unlikely to be connected to existing wastewater infrastructure.

Service quality outcomes

Water supply

There are four types of water supply products available from the Distribution Businesses:

- water supply at drinking water quality, delivered to premises (ie via distribution network);
- water supply at drinking water supply, made available at a common offtake (eg standpipe);
- water supply at other water quality (eg recycled water) delivered to premises via a separate distribution network; and

- recycled water or wastewater, made available at a common offtake (eg standpipe).

The table below summarises the key features and outcomes from the water supply service.

Service outcomes – water supply

Feature	Description	Outcome
Quality	The quality characteristics of the water supplied at the customer's offtake. The Distribution Businesses receive water at a minimum of drinking water quality into their potable networks via contracts with the WGM.	Quality is typically fit-for-purpose. Drinking water standards are set by regulation. There are guidelines in place for the supply and use of recycled water in other applications. Raw water is typically provided 'as is'. The *Water Supply (Safety and Reliability) Act 2008* is the key regulation in relation to drinking water quality. These criteria are typically referenced against the Australian Drinking Water Guidelines.
Pressure	The force at which water is available at an offtake.	A minimum pressure is typically used as the service measure.
Flow rate	The rate at which water is supplied (volume / time).	A flow rate is typically expressed in terms of litres/second or ML/day at which water can be taken. For major users, there might be time-of-day or maximum volume conditions as well.
Supply Continuity	The level of interruption to the service caused by asset breakdown or operational error.	The Strategic Asset Management Plan, required under the *Water Supply (Safety and Reliability) Act 2008* is the key reference document, setting service targets for continuity.
Reliability (Level of Service)	The likelihood of water supplies being restricted, and the severity and duration of those restrictions.	For SEQ, this is now determined through regional water planning processes. Refer to the draft South East Queensland Water Supply Strategy.
Total volume	The minimum or maximum water available to the user.	This is more of a constraint than a service feature. For residential users, the QWC sets these maximums and the measures taken to address over-use. Commercial and industrial users must comply with a Water Efficiency Management Plan (WEMP).

These have been considered against the needs of residential, commercial and industrial users below.

General needs of user type, by product feature

	Residential	Commercial	Industrial
Water quality	Essential for drinking water and some indoor uses. Fit for purpose standard for some other uses (eg ablutions) or outdoor uses (eg gardens).	Essential for drinking water and some indoor uses. Fit for purpose standard for some other sues	Essential for drinking water component. Otherwise, drinking water standard is not necessarily fit-for-purpose. A higher or different standard may be required, depending on the use and application.
Pressure	Essential.	Essential.	Can be designed for alternative pressures, depending on plant configuration and requirements.
Flow rate	Essential	Essential	Rate of supply needs to be able to meet rate of production. Internal customer network can allow for variations in the design (e.g. by incorporating storage)_
Supply continuity	Minor (short) interruptions can occur without significant consequences.	Minor (short) interruptions can occur without significant consequence, though this will vary between users (eg higher impacts can be expected for hotels, hospitals etc). Critical customers can reduce the risk through the design of their internal network (e.g. incorporation of onsite storage and/or multiple supply connections)	Impacts of interruption depend on the nature of process. Impacts may be high where sudden interruption causes plant damage or loss of production. Users sometimes have on-site storage to mitigate.
Reliability	Have some capacity to bear restrictions – for example for non-essential outdoor use.	Limited capacity to bear restrictions without impact once all possible water conservation measures have been implemented.	Limited capacity to bear restrictions without impact once all possible water conservation measures have been implemented.

It is important to note that:

- the Distribution Business is limited in its ability to offer a differentiated service, particularly in relation to water quality (drinking water from a common network), supply continuity, pressure and reliability;
- it can offer supplies at different flow rates and pressures, subject to infrastructure capacity constraints. This is normally expressed through different diameter connections; and
- there are a range of potential substitutes to this service, mostly in relation to non-drinking water uses. These include water tanks, greywater, recycled water and stormwater, which are typically less reliable and small-scale (although there is scope for large-scale, reliable recycled water supplies).

Wastewater

There are three types of water supply products available from the Distribution Businesses:

- acceptance and disposal of sewerage directly from a user's premises to the sewer network;
- acceptance and disposal of trade wastes from a users' premises to the sewer network; and
- acceptance and disposal of wastes at a wastewater treatment plant.

The wastewater service outcomes are described in the table below.

Service outcomes - wastewater

Feature	Description	Outcome
Quality accepted	The acceptable quality characteristics of the water-borne waste at the customer's discharge point or the waste presented at a treatment plant. This might be measured in terms of concentration and/or mass.	This is essentially a constraint on users, with the outcome being the standard of that constraint. In some cases, this is simply applied by the type of use (eg sewerage connection to residential premises, or business type). For others, the constraint relates to the characteristics of the waste itself. Regulation governs discharges to the sewer, including prohibited substances, under the *Water Supply (Safety and Reliability) Act 2008*. Service providers are also constrained in terms of their discharges to the environment, and may also face general environmental obligations. There may also be outcomes required from Drinking Water Quality Management Plans in relation to Purified Recycled Water.
Flow rate	The rate at which sewerage or trade waste can be discharged to the sewer network.	A constraint as to the maximum rate of discharge to the sewer. This is typically set through the size of connection.
Continuity	The extent of interruption to the service from sewer chokes.[4]	The Strategic Asset Management Plan, required under the *Water Supply (Safety and Reliability) Act 2008* is the key reference document, setting service targets for continuity.

Wastewater services are used by commercial and industrial users, households, and (to a far lesser extent) waste service providers transporting waste from a customer's residence (eg septic pump-outs) to a wastewater treatment plant. The table below provides a summary of the needs of each.

[4] This is a performance measure in the Guidelines for Preparing Strategic Asset Management Plans (February 2002). .

General needs of user type, by product feature

	Residential / Commercial	Industrial	Waste disposal provider
Quality accepted	Not relevant, given sewerage is accepted into the sewer network as homogenous quality.	Critical. Determines standard of acceptable discharge.	Critical. Determines standard of acceptance of waste.
Flow rate	Critical.	Critical.	Not relevant, as waste is transported to the treatment plant directly and does not use the sewer network.
Continuity	Little capacity to bear service interruptions.	Critical.	Less relevant given waste is transported via trucks (some capacity to store).

Wastewater services are typically differentiated between sewerage (eg toilets, showers, kitchen etc) and water borne trade waste from an industrial or manufacturing process. The key point of differentiation is typically the quality of the water-borne waste discharged, with sewerage at a 'standard' grade, and trade waste at a lower quality with higher cost impacts.

Infrastructure connectivity and capacity

There is a high degree of connectivity within council areas for water assets, although there are 38 of discrete supply areas (refer to table above). There are practically no interconnections between the boundaries of the new Distribution Businesses.

A high level assessment has revealed that some connections may be technically and economically feasible in the future between Distribution Business areas.

By contrast, wastewater systems are highly fragmented and operate on a stand-alone basis, servicing a single wastewater treatment plant (ie load sharing does not occur between plants on a daily basis). There are in total around 64 wastewater treatment plants in SEQ. There are also a number of cross-boundary connection opportunities (based on technical feasibility, and not capacity), for example for a trade waste customer in the service area of one Distribution Business to connect to the sewer network of a neighbouring Distribution Business.

Costs of supply across and between entities

Each of the new entities will face different bulk water charges during the transition period to 2017/18. The costs of supply will also be governed by the asset values to be set for the water and wastewater assets, which are yet to be determined.

Analysis of high and low cost areas shows there will be variation in costs for water and wastewater assets within boundaries and across boundaries.

Average and marginal cost of supply

The marginal cost of servicing new areas, compared to the average cost, is likely to be site specific, depending on factors such as geological conditions, infrastructure crossings, proximity to bulk sources and existing distribution assets, distance and topography.

This range is, in part, evidenced by the range of infrastructure charges which provide some indication of marginal cost although we understand the precise approach to setting these charges may differ between councils[5]. These charge range from less than $3000 per tenement to over $10,000 per tenement.. This can be compared to the NPV of water charges to an existing household using 250kL per annum. Based on current 2009/10 prices for distribution services, this ranges from around $3,200 per household to $5,300 per household. While these two costs are not directly comparable, it does give an indication of the comparative costs.

A similar analysis has been conducted for wastewater assets, referencing infrastructure charges and existing sewerage charges. These infrastructure charges are typically around $3,000 to $5,000 per tenement. This compares to the NPV of sewerage charges for residential users of between $4,300 to $6,200 per household.[6] This demonstrates that wastewater expansions are more likely to be at or below average cost, than expansions to the water supply network.[7]

Nature and significance of key risks relevant to regulatory pricing

Water and wastewater businesses typically face a cost structure that is predominantly fixed, particularly those that are vertically integrated. However, as a result of the asset transfers and current bulk water price tariffs, councils no longer have a very different cost structure as bulk water costs are charged on a volumetric basis. As a result (and so long as bulk water charge are levied on consumption), the returns of the new Distribution Businesses can be expected to be less volatile at least in respect of the exposure to uncertain demand. The Distribution Business will have very little, if any, ability to manage year-on-year volume risk from its existing asset base.

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[5] Indeed, the draft guidelines published by the Department of Infrastructure and Planning suggest that infrastructure charges should reflect a measure of average cost after augmentation.

[6] Based on a range of sewerage costs between $400 and $580 per property, over 30 years, discounted at 8.5%.

[7] We acknowledge there are many shortcomings with this comparison, particularly given the difficulty in comparing infrastructure charges with user tariffs, and that infrastructure charges would appear to be set to reflect average costs post augmentation, rather than purely incremental costs.

For wastewater services, the underlying cost structure has not changed, with costs predominantly fixed except for the variable costs of chemicals for treatment and electricity for pumping. Councils currently bear very little volume risk in their existing tariff structures for wastewater services, compared to water supply services.

Volume risk in relation to growth would may be mitigated through the current infrastructure charging regime, which contribute to the cost associated with this growth.[8] However, this would not account for growth in demand from existing customers, who may change (increase of decrease) their water and wastewater requirements over time as opposed to year-on-year variation in demand.

There may also be regulatory risks, or at least complications, arising from infrastructure charges to the extent they are meant to recover future augmentation related to an expanded service footprint.

Distribution Businesses also face a range of compliance risks, many of which may generate cost imposts during a regulatory period. For example, compliance with drinking water quality regulation and environmental discharge standards for wastewater treatment plants (although these are typically triggered by an upgrade or change of status).

Factors relevant to market power

For the purpose of defining the market for water supply services, the relevant market is the market for the distribution and retail of potable and non-potable water. The market assessment further defined it as a series of regional markets defined according to local government boundaries. For wastewater services, the relevant market is market for waste removal services, which includes both use of the sewer network and treatment facilities. The market is further defined as a series of regional markets delineated according to local government boundaries.

The tables below summarise the opportunities for rivalry in the water supply and wastewater markets. Many of the opportunities for competition are in servicing greenfields developments and large customers, rather than existing customers of the Distribution Businesses.

It should also be noted that customers may implement technologies that reduce their demand for the services of the Distribution Businesses. This may include the use of water efficient appliances in households or investment in processes by industrial users

[8] Depending upon the accuracy of the calculation the charge, compared to actual events, the range of costs included and the assignment of those costs to existing and new users.

that reduce trade waste – for example, partial treatment of waste prior to discharging into the sewer network/treatment plant.

Water supply market – Rivalry and barriers to entry

Potential for rivalry	Barriers to entry
Alternative water supply entity • supply via connection to the water grid; • remote source supplies	Economic barriers – uneconomic to duplicate network.
Interconnection and cross-boundary connections • customers in area serviced by one distribution business connecting with another distribution network; • interconnection agreements between distribution businesses; • Toowoomba Regional Council opportunity to supply customers in area in proximity to pipeline connecting Wivenhoe to Toowoomba;	Difficulty in obtaining planning approval to connect cross-boundary customer due to conflict of interest of rival distribution business.
Water Grid Manager • some customers may bypass the distribution network by contracting directly with WGM;	Limited to large scale customers.
Third party access (if declared) • where a third party enters into an access agreement with a distribution business for access to its network;	Difficulty in obtaining planning approvals for any connecting infrastructure due to conflict of interest of rival distribution business.
Retail competition (not clear if will occur) • where there is competition for the retail services provided by the distribution businesses;	

Wastewater market – Rivalry and barriers to entry

Potential for rivalry	Barrier to entry
Sewer network	
Alternative provider • construction of wastewater pipeline connecting new development/major user to a wastewater treatment plan; • road transport of waste;	Economic barrier – uneconomic to duplicate sewer networks; – small scale of truck transport limits option;
Septic tanks	Institutional/regulatory barriers • conflict of interest for distribution business in development application assessment;
Interconnections and cross-boundary connections • customers may connect to the distribution network of a neighbouring distribution business; • interconnection between sewer networks of distribution businesses by agreement;	Economic barrier – uneconomic to duplicate sewer networks;
Third party access (if declared) • negotiation of an access agreement with distribution business to use its sewer network;	
Wastewater treatment plant	
Alternative provider • construction of new wastewater treatment plants; • landfills for some types of waste	Economic barriers less severe for wastewater treatment plants. Institutional/regulatory barriers • restrictions on councils which require them to supply 'feedwater' for the WCRW scheme; • conflicts of interest in development assessments for new providers; • access to land to connect infrastructure/check meters;
Interconnections and cross-boundary connections • customers in an area serviced by one distribution business may connect a wastewater treatment plant owned by another distribution business; • interconnection between sewer network of one distribution business to treatment plant of another by agreement; Competition for standpipes • customers (trucks) may use standpipes provided by any distribution business, depending on circumstances; Competition for treatment • acceptance of waste sourced from outside of distribution business boundary (ie. by truck) Competition for effluent • a distribution business may sell effluent from its wastewater treatment plants in competition to other distribution businesses;	Economic barriers • economies of scale less of an issue than for sewer networks; Technical • nature of waste being removed. (limits of discharge license);

Rivalry

Water supply

Given the monopoly characteristics of the distribution network infrastructure, there may be limited scope for competition for the majority of customers supplied by the Distribution Businesses. Rather, the opportunities for competition may be relatively limited to new growth areas or individual developments of a scale and/or location to justify remote source supply. This provides an example of competition at the geographic level. The opportunities for competition in water supply services are outlined below.

Alternative water supply

- supply via connection to the existing distribution assets
  - this may occur when a water service provider (other than a Distribution Business) registers as a customer of the WGM under the SEQ Market Rules. This would allow that entity to enter into a contract to purchase water from the WGM to supply end customers. The nature of the competition in this case is at the functional level, with the alternative supplier being an entity that is 'upstream' in the supply chain;
- remote source supplies
  - there may be opportunities for an entity other than the Distribution Businesses to service a remote town or development or an industrial user, with stand alone infrastructure. This would require a water source other than the water grid, for example, a desalination plant, recycled water or stormwater source.;
  - there are also regulatory requirements to source water other than from the WGM, such as a requirement to obtain a water entitlement or resource operations license.

In either of these cases, opportunities for new market entrants are more likely to occur from growth in the market rather than from the switching of existing customers.

Interconnection and cross-boundary connection opportunities

Cross-boundary connections are most likely to be viable around the boundaries of the new distribution networks. For instance, a customer near the regional boundary of a distribution network may be physically closer to a water supply source from another Distribution Business than it is to supply sources owned by the Distribution Business

that services its locality. In this case, connecting to the other network may be lower cost option for that customer. This may be considered an example of competition at the geographic level. The drivers of cross-boundary connections are likely to be distance (to the network), capacity, spare capacity, topography and prices offered by neighbouring Distribution Businesses.

The pipeline linking Wivenhoe Dam with Cressbrook Dam near Toowoomba also provides a fairly unique opportunity for Toowoomba City Council's (TCC) to supply water to customers that are outside of its council area but along the pipelines route, assuming that TCC owns this pipeline into the future[9]. This may require some capital expenditure by the TCC, however, depending on the customers and growth opportunities in this area, this may be a circumstance where TCC could potentially compete with the DB Central.

Water Grid Manager as competitor

There may be an opportunity to bypass the distribution network for a major industrial user, who is in a position to enter into a contract with the WGM as a customer. For industrial users in proximity to the WCRW pipeline, this may be a commercially viable alternative to sourcing water from the distribution network. Some major users may have the flexibility to locate where relatively low cost water supplies are available.

Wastewater

There are limited substitution possibilities for this service. There is the option of removal of wastewater and delivery to the treatment plant by truck. This occurs to a very limited extent at present. Given the nature of the product, the scale limits of truck transport and transport costs, this option will be limited to a small number of customers, such as a large business, possibly firms with trade waste to remove.

The sewer network owned by the Distribution Businesses has natural monopoly characteristics, making it uneconomic to duplicate. This suggests that there is little likelihood of a new market entrant duplicating the sewer network.

Although there is not the potential for a significant degree of competition, there may be potential for competition in certain limited cases. For instance, there may be scope for an alternative entity to construct a wastewater pipeline connecting a new development or a major industrial user to a wastewater treatment plant. These opportunities are likely to be limited to greenfields developments or individual cases where new

[9] We are not sure whether the final ownership has been confirmed.

wastewater pipeline infrastructure needs to be constructed. There are also some cross border opportunities at the boundaries of the new businesses. There is also some competition from road transport of waste, with some customers transporting waste, including trade waste, to treatment plants by truck. This is an example of competition at the product level. Given the small scale involved in truck transport however, these are likely to be fairly limited opportunities in the context of the entire wastewater supply market.

However, the situation is different for wastewater treatment plants. These are more decentralised facilities as the sources of wastewater are multiple and diffuse (in contrast to water sources, which tend to be a more centralized source, such as a dam). This suggests that there may be greater opportunities for treatment plants to be established by other providers, particularly in growth areas where there are greenfields developments.

Landfills also provide an alternative for some types of non water-borne waste. By way of example, the Sunshine Coast Regional Council charges for disposal of oily waste at Eumundi Road landfill at $0.17/litre and grease trap waste at $0.12/litre. Transport costs will be a key factor in determining the viability of competition from this source. In principal, there could competition between wastewater treatment plants and landfill operators for this service.

Barriers to entry

There does not appear to be any institutional prohibitions per se on entities other than the three Distribution Businesses from participating in the water market, although there are conditions that must be satisfied. The central role of each Distribution Business in planning and development approvals may, however, give the incumbent an advantage in respect of servicing growth areas.

The economic characteristics of the infrastructure mean that the reticulation networks are unlikely to be duplicated by another service provider, suggesting that there is little scope for competition for the Distribution Businesses in servicing the markets within their water service area.

In terms of the sewer network, the economies of scale in this network are a barrier to entry as it will be uneconomic for another provider to duplicate the infrastructure. The scale limitations of truck transport of wastewater place a limit on the potential significance of this source of competition for the Distribution Businesses. Given the small volumes that can be transported by truck, vehicle transport is likely to be limited in its share of the wastewater removal market.

The economic barriers to entry to the wastewater treatment section of the market are less severe as there is greater scope for the establishment of standalone wastewater system (sewer network and treatment plant) near new urban developments or industrial developments requiring trade waste treatment.

In either case, opportunities for new entrants will be more significant in new growth areas and greenfields developments. At the least, the Distribution Businesses do not appear to have an incumbent advantage in servicing these markets.

There are regulatory limitations that currently apply to some councils regarding 'feedwater' for the WCRW scheme. The South East Queensland System Operating Plan provides a process to secure the availability of western corridor feedwater to ensure the ongoing operation of the WCRW scheme. Brisbane City Council (BCC) and Ipswich City Council (ICC) presently must make available feedwater at specified locations. There are also limitations on the councils entering into any arrangements with a third party in relation to the use of and/or supply of western corridor feedwater.[10] The SEQ Water Strategy also recognises the need to preserve sites for future supply sources such as desalination plants and PRW schemes.

Likelihood of excessive returns

Excessive returns are usually measured against a maximum allowable revenue for an asset. The value of those assets is central to this assessment, however values are yet to be set for the water and wastewater assets. If the opening values are to be referenced to the previous valuation conducted to transfer bulk supply assets to the state, then assumptions used for that valuation are relevant. Based on our understanding of the valuation methodology (as described by KPMG)[11], current (2007/08) prices were used to set the opening RAB for valuation purposes.

It could be said that prices are not excessive if they are consistent with those assumed for setting the opening valuation, or have only been adjusted to take account of factors related to reforms, such as bulk water prices, or other (justifiable) changes in cost. As such, the starting prices assumed for the valuation become a key consideration. The QCA's recent price monitoring of changes to retail prices are also relevant to assessing the basis change.

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[10] South East Queensland System Operating Plan, Release 2.2 – Release Date 21 September 2009

[11] KPMG. *Queensland Treasury SEQ Water Transaction Unit. Valuation of SEQ Councils' Bulk Water Assets. Approach and Process*. (December 2008). This can be found at http://www.treasury.qld.gov.au/office/knowledge/docs/kpmg-valuation-of-seq-councils/kpmg-valuation-of-seq-councils.pdf

A further consideration is the efficiency of current costs (or future costs of the Distribution Business), which will be a matter to consider once those businesses are operational and have transitioned to their new operating environment.

Asset values for water supply and wastewater

Assuming the valuation is used as the basis for setting prices, then separate water and wastewater asset values will need to be developed. This will require an assignment of value between the two services, and may also require values being assigned to individual assets or networks/systems. This is likely to be difficult if the objective is to not distort the current levels of price. For example, assigning 'too much' value to wastewater might lead to increases in wastewater prices and a corresponding fall in water supply charges. While this will not generate excessive returns, it could lead to perverse and unintended outcomes. It may therefore be necessary to back calculate values for each, using existing prices or at least use sensitivity testing to examine various approaches. Councils themselves (or Distribution Businesses) might be well placed in the first instance to propose a split that does not materially impact on prices.

Infrastructure charges

Many of the costs incorporated into infrastructure charges now relate to bulk water supply assets, whose costs are recovered through bulk water charges. This may need to be revisited in terms of the scope of infrastructure charges in the future.

The interrelationship between infrastructure charges and ongoing water supply and sewerage/trade waste tariffs also warrants further attention, as there is no clear linkage between the two, and there is evidence of different approaches and assumptions being used between the two forms of charge.

Ideally, infrastructure charges would be set to recover the shortfall between the net present value (NPV) of the marginal cost of the expansion and the NPV of revenue growth generated. Infrastructure charges do not appear to be calculated in this way, but determine a form of average capital (replacement) cost incorporating demand growth and augmentation. We also understand that in practice, councils may be using a range of approaches to calculate infrastructure charges.

It may also be necessary to scrutinise the capital and other expenditure included in infrastructure charges, to ensure they are not also included in costs to be recovered from ongoing tariffs.

Evidence of cross subsidy in pricing

Cross-subsidies exist where the service provider receives less net benefits (including the charge levied) from the supply of the service than the incremental cost of supply, and another customer or group of customers pays more than the stand alone cost (or by-pass cost) of supplying these services. The vehicle for assessing whether or not this is the case is the stand alone cost (SAC) test.

The most likely instances of cross subsidy relate to infrastructure charges, where the sum of the infrastructure charges and the ongoing water charges for users in new developments could exceed SAC.[12]

Cross subsidy is less likely elsewhere, though may exist where the costs of supply vary significantly between areas, and where postage stamp pricing is applied. For example, costs may be higher in isolated networks taking water from remote sources than areas in more densely serviced areas that are connected to the main reticulation network. However, there is insufficient information to conclude whether these differences are large enough to generate cross subsidy.

Higher prices for industrial and commercial users is not, of itself, evidence of cross subsidy. However, cross subsidy will occur where those price differentials result in costs to those users being above the SAC of supply, while at the same time allowing prices to residential or other users being below incremental cost. It is not possible to discern whether this is the case based on available information, although it appears unlikely that a cross subsidy exists.

Nonetheless, the rationale for these price differentials warrants scrutiny. For example, discounting to the residential sector may be inefficient where they have the capacity to pay the 'non-discounted' charge. There may also be differences in service levels between the two sectors, although this is not obvious from the available information.

The potential for cross subsidy arising from postage stamp sewerage and trade waste charges is likely to be greater than for water, given there are many more discrete wastewater systems and these are likely to have different levels of cost. However, it is not possible to discern instances where prices would exceed SAC.

Trade waste charges may give rise to cross subsidy concerns where charges do not recover the incremental cost of transporting and treading those trade wastes, which may be significant in some cases.

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[12] Assuming that infrastructure charges were passed through to these users in the value of the developed land.

Some councils set lower sewerage prices to clubs, retirement villages etc, often at a substantial discount. This may not represent a cross subsidy where this is above the incremental cost of supply. However, this may not represent efficient pricing where it does not signal the long run marginal cost of supply. Furthermore, at least some of these users may have the capacity to pay the undiscounted price, thereby removing the need to set higher prices for other users. Discounts made to achieve a social outcome would ideally be done through transparent CSO mechanisms, which would be a matter for councils as future owners of each Distribution Business.

Other matters

Voluntary treatment plant upgrades

While discharges from treatment plants are governed by environmental conditions, we understand that councils may have previously upgraded treatment plants of their own accord to meet environmental outcomes over and above those required by discharge licenses. To the extent that more upgrades occur into the future, the regulatory treatment of those upgrades will warrant consideration. The central issue will be the legitimacy of including such expenditure into the asset base, where it was at the owner's discretion rather than in response to a compliance requirement.

Unconnected properties

Many councils charge water supply and wastewater charges for vacant land or properties able to be, but not connected to the network. These charges levied on people who do not receive the service warrant further consideration when considering pricing into the future, and the basis of any such charges at least made transparent.[13]

Pricing differentials for different supply security

It could be argued that a water price differential should apply between the residential and non-residential sectors to reflect the different reliability or security of supply for each. However, these are not issues for prices from the Distribution Business, as it does not set nor control these restrictions and Levels of Service nor affect the distribution assets. Rather, this is an issue for bulk water charges. Hence there is not a strong case for distribution/retail aspect of water charges to differentiate between the sectors on account of this difference.

[13] It is possible that this practice has arisen from water and sewerage costs being historically recovered through council rates, levied on land.

Discriminatory pricing in favour of councils

Councils are users of water, for example at parks and gardens and for council premises. A price monitoring and regulatory framework might need to be attentive to the potential for discounting to councils, as owners of the Distribution Business.

Tariff structure and price signals

While Councils have adopted a two part tariff for water supply, we have not be able to discern the intended price signals arising from those tariffs, and whether they signal long run marginal costs (LRMC) in particular.

This is equally the case in relation to wastewater pricing. For example, while the level of trade waste charges, particularly those levied on a volumetric or contaminant load basis, would appear to respond to some of the key cost drivers, the level of those charges and the price signal may warrant further attention. These trade waste charges may only be set to reflect short-run marginal costs, or a blended average cost across all wastewater system, rather than LRMC for each individual system. The price signals from sewerage charges also warrants further consideration in relation to signaling LRMC.

Contents

1 Introduction

With the creation of the South East Queensland (SEQ) water grid, there have been substantial reforms in the water sector in SEQ in recent years affecting all elements of the supply chain. Bulk water supply and water treatment have been amalgamated into a single entity and new entities have been created to manage manufactured water supplies and bulk transport. A water grid manager (WGM) has also been created.

The distribution and retail sector of the water and wastewater markets are also subject to substantial reform, with three new entities (the Distribution Businesses) being created providing combined distribution and retail water and wastewater services. For the purpose of this report, we have labeled each business as follows[14]:

- DB North –comprising Sunshine Coast and Moreton Bay council areas;
- DB Central – comprising Brisbane, Scenic Rim, Ipswich, Somerset and Lockyer Valley council areas;
- DB South – comprising Gold Coast, Logan and Redland council areas.

The Queensland Competition Authority (QCA) has been directed to investigate and report on a recommended price monitoring framework for the SEQ water and wastewater distribution and retail activities (the Direction Notice).[15]

To assist in this task, Synergies has been asked to provide the QCA with a high level description of the physical and market characteristics of each network and an economic analysis of the issues for access and price regulation. This includes an analysis of the potential for the Distribution Businesses to exercise market power. Specifically, the QCA's terms of reference for this task require Synergies to document prevailing and likely market conditions (including by geography and customer groups) with a particular focus on:

- the demand and supply of water and wastewater; including
  - a stocktake of current prices for these activities;
  - historical volumes and projections for each entities' key markets and sub-markets;

[14] We understand that names have been or are being developed over the period which this report was drafted. For example, DB Central is known as Queensland Urban Utilities. We have retained these more descriptive titles for this report for simplicity as the reader may not be familiar with the newer names.

[15] Published in the Government Gazette, 9 October, 2009.

  - service quality requirements and outcomes;
  - infrastructure connectivity and capacity within and between the new entities;
  - whether the costs of supply are likely to differ significantly across and within the new entities, and across key customer groups;
  - whether the average and marginal costs of supply are likely to be increasing or decreasing; and

- any other factors relevant to the potential exercise of market power by each new entity, including:
  - the level of rivalry likely to exist between the new entities;
  - barriers to entry;
  - the likelihood of excessive returns being earned; and
  - any evidence of cross subsidies in pricing.

In structuring this report, we have had regard to the criteria for deciding to declare a candidate water activity to be a monopoly water supply activity.[16] While this report is not a formal assessment for this purpose, these criteria provide a framework for considering the various issues of interest to the QCA. We have also been mindful to identify any additional issues, particularly anomalies and unusual situations relevant to the QCA's future considerations for prices oversight.

This report has been developed over a short timeframe, and has drawn heavily from publicly available information. In some cases, we have been constrained by the availability of information. It is also worth noting that some key policy issues and legislation are yet to be finalised in relation to these Distribution Businesses. This report has been structured as follows:

- Chapter 2 provides a summary of the current situation, including the size and attributes of the Distribution Businesses and the SEQ water reforms;
- Chapter 3 describes the water and wastewater services;
- Chapter 4 examines the current prices and cost structures for each service;
- Chapter 5 discusses the rivalry and barriers to entry aspects;
- Chapter 6 examines the scope for excessive pricing and barriers to entry; and
- Chapter 7 concludes the report.

[16] We acknowledge that these criteria do not strictly apply to wastewater services, however are still relevant for the purpose of this report.

2 Current situation

The first stage of the SEQ water reforms saw the purchase of bulk water assets from 18 councils by the State Government and the creation of four new statutory authorities in July 2008 to manage these assets. Concurrently, these 18 councils were amalgamated into 10, along with some slight boundary changes for some council areas.

The second stage of reforms will establish the three new Distribution Businesses whose primary functions are:[17]

- purchasing water from the SEQ Water Grid Manager;
- distributing water;
- providing water services;
- providing wastewater services;
- charging customers;
- dealing with customers, service requests and addressing any complaints; and
- anything that supports these functions.

This chapter examines these reforms, and describes the historic and future demand conditions along with the relative size of each business.

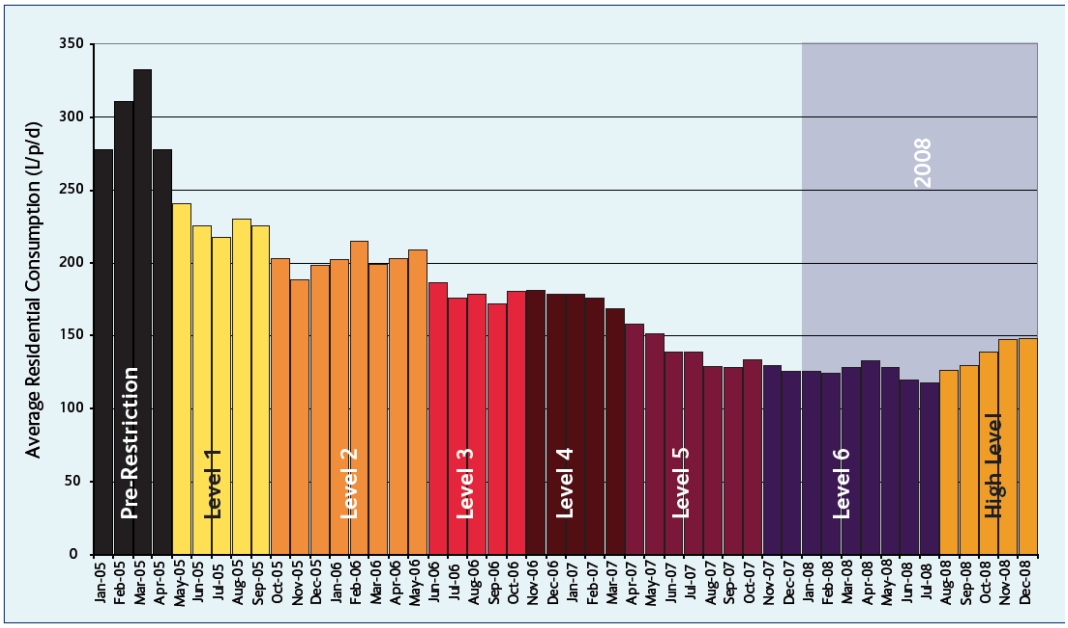
2.1 Historic and future demand

There is very little public information at a disaggregated level for water and wastewater demands in SEQ. The Queensland Water Commission (QWC) has prepared aggregate data since 2004, showing the effect of the drought and restrictions on water demand, and has also undertaken forecasting for planning purposes.

In terms of historic demand, there has been a significant reduction since 2004. Figure 1 below shows the extent of this reduction through to December 2008 for residential demand.

[17] South-East Queensland (Distribution and Retail Restructuring) and Natural Resources Provisions Act 2009, Explanatory Notes

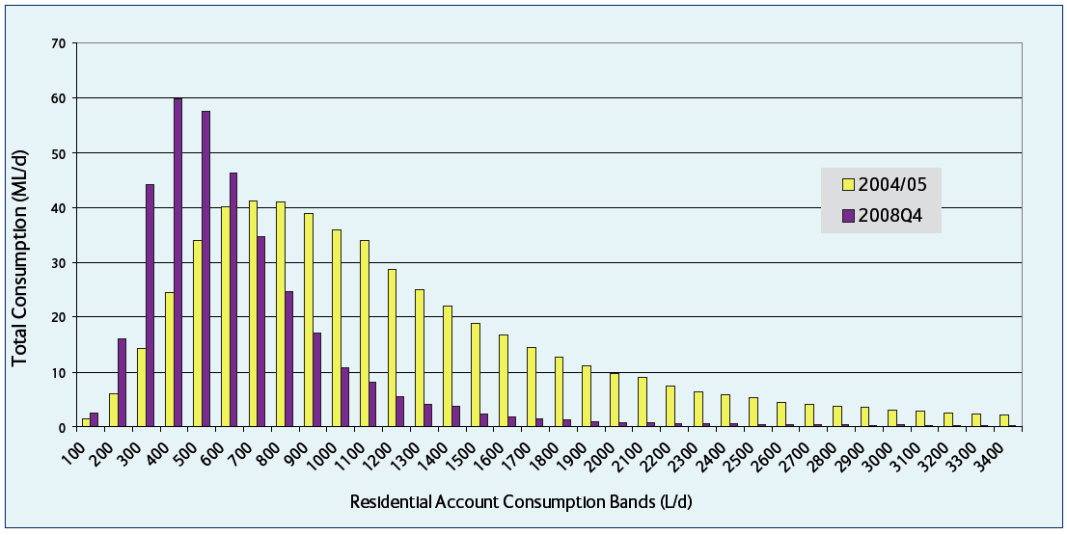
Figure 1. Residential Water Demand



Source. Queensland Water Commission. The 2008 Water Report.

The profile of residential water demand has also shifted, and during the drought a far greater proportion of households were using less water (Figure 2 below refers).

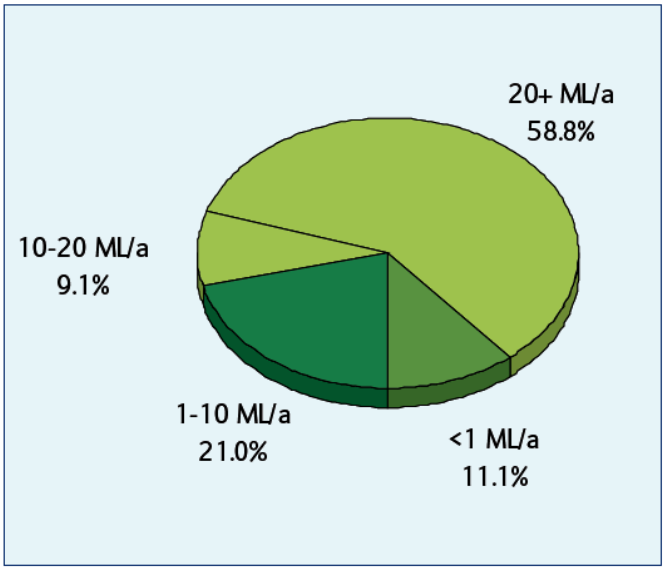
Figure 2. Residential Water Consumption by Consumption Band



Source. Queensland Water Commission. The 2008 Water Report.

In 2007/08, residential demand accounted for 71% of total consumption. The majority of non-residential demand is from very high water users, as illustrated below:

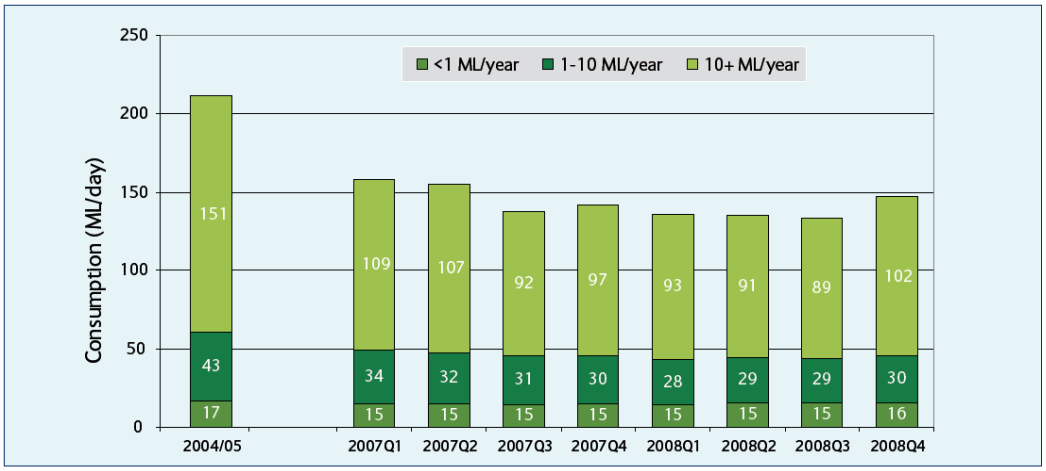
Figure 3. Non-residential Water Consumption by Consumption Band



Source. Queensland Water Commission. The 2008 Water Report.

Restrictions have also resulted in demand reduction in the non-residential sector. High water users (>10ML per annum) contributed 78% of all savings (refer below).

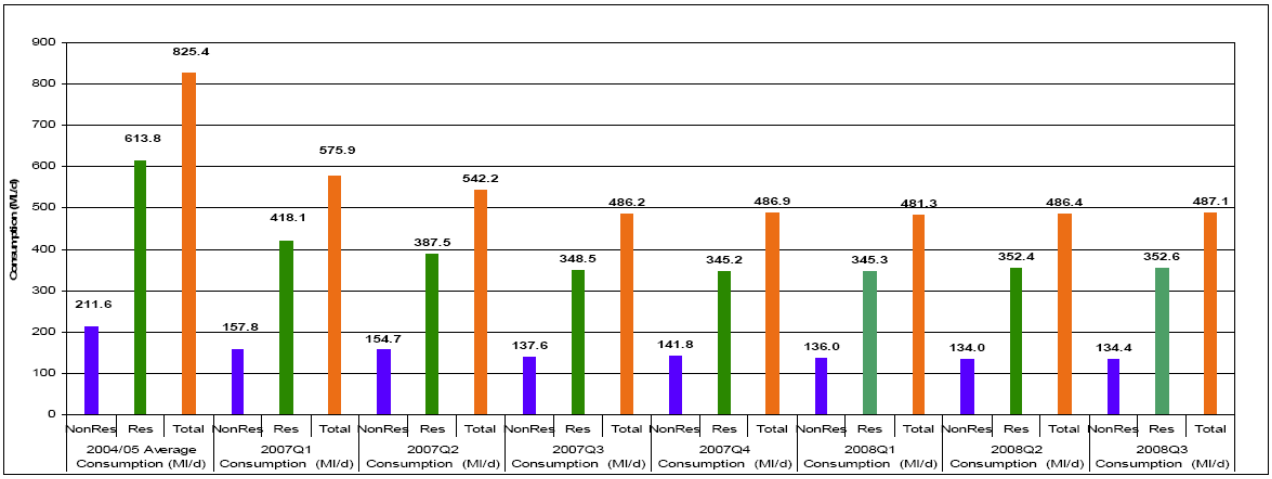
Figure 4. Non-residential users contribution to forecast savings



Source. Queensland Water Commission. The 2008 Water Report.

The change in total demand for both sectors in SEQ is set out below (to 3rd quarter 2008).

Figure 5. Residential and Non-Residential Consumption Over Time (ML/day)



Source – QWC. The Water Report (14 December, 2008).

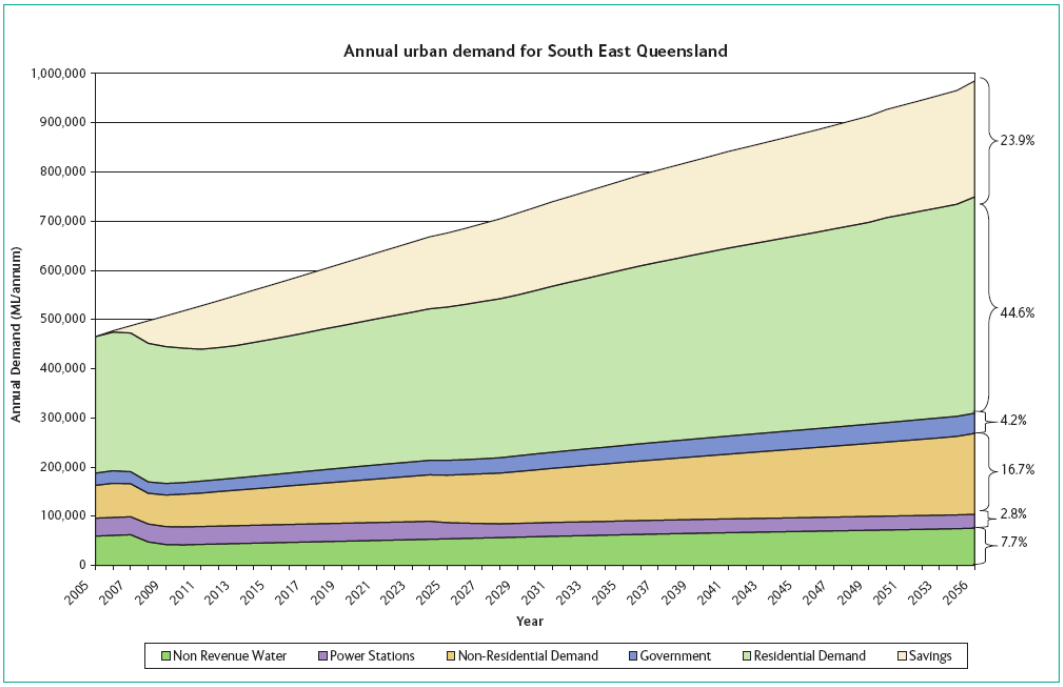
The QWC's long-term planning forecast, set out in its draft South East Queensland Water Strategy (SEQWS) is predicated on structural changes to water use, and significant reductions to per-capita residential consumption and more efficient non-residential use. [18]

> The Strategy sets out an ambitious demand management program that is forecast to reduce demand for drinking water by around 24% compared to pre-drought trends. By 2056, the forecast annual savings will be more than five times greater than the supply capacity of the desalination plant at Tugun on the Gold Coast.
>
> The Strategy seeks to ensure that, after the Millennium Drought, average residential use does not increase above 230 litres per person per day of Grid Water. By comparison, average residential consumption prior to the Millennium Drought was approximately 300 litres per person per day. During the drought, average residential consumption has fallen below 140 litres per person per day.

This translates into the following demand forecast.

[18] Queensland Water Commission. Draft South East Queensland Water Strategy. (March 2008) p14.

Figure 6. QWC Demand Forecast (excluding rural water demand)



Source: Queensland Water Commission. Draft South East Queensland Water Strategy.

For wastewater, it is understood that historic volumes of sewerage entering SEQ treatment plants has similarly been affected by the drought and restrictions, with significantly reduced flows.

We were not able to find other publicly available information about historic or forecast demand for wastewater services, although infrastructure planning processes in SEQ have identified a number of growth areas and the proposed water supply and sewerage response. This is set out in Attachment 5.

2.2 Attributes of the Distribution Businesses

The table below summarises the features of each business from information provided by the Council of Mayors (SEQ).

Table 1 Water Distribution Business – profiles

Distribution Business (DB)	Service population	Service area (dwellings)	Assets
DB Central	Approx. 1,243,467 (44.9%)	-	Approx. $4 billion (37%)
DB North	Approx. 673,684 (24.3%)	Approx. 5,138 sq. km	Approx. $2.8 billion (25.9%)
DB South	Approx. 850,000 (30.7%)	Approx. 2,800 sq. km	Approx. $4 billion (37%)
Total	**Approx. 2,767,151**		**Approx. $10.8 billion**

Note: The third column describes service area in square kilometres for DB North and DB South.
Source: http://www.seqwaterreform.qld.gov.au/Water+Business+1+-+Brisbane+Ipswich+Lockyer+Valley+Somerset+and+Scenic+Rim

Connection data for each council area (pre-amalgamation) is set out below. This data relates to 2006/07.

Table 2 Water and sewerage connections, 2006/07

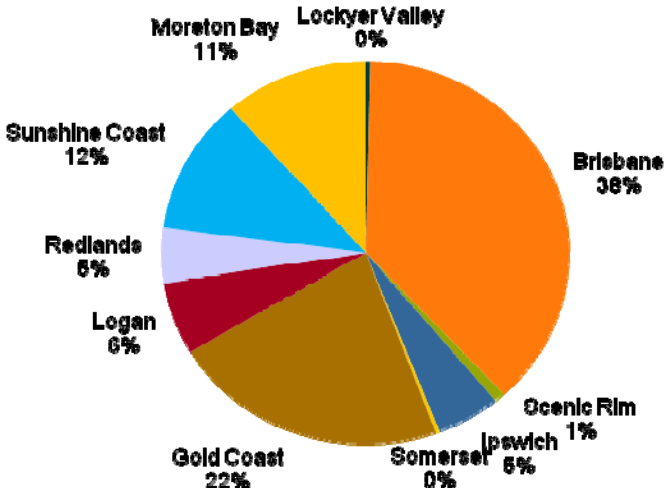
Previous entity	Water			Sewerage		
	No. res	No. non-res	Total	No. res	No. non-res	Total
Beaudesert	8,837	211	9,048	2,823	213	3,036
Boonah [a]	n/a	n/a	2,000	n/a	n/a	n/a
Brisbane	377,698	27,380	405,078	377,698	27,380	405,078
Caboolture	49,090	1,596	50,686	36,510	1,205	37,715
Caloundra	39,152	n/a	39,152	35,527	n/a	35,527
Esk	3,013	256	3,269	1,433	179	1,612
Gatton	3,616	224	3,840	2,327	244	2,571
Gold Coast	217,982	15,766	233,748	207,959	14,818	222,777
Ipswich	52,399	1,829	54,228	46,967	n/a	46,967
Kilcoy [a]	728	174	902	640	160	800
Laidley	n/a	n/a	n/a	n/a	n/a	n/a
Logan	62,741	3,726	66,467	n/a	n/a	63,644
Maroochy	60,366	n/a	60,366	48,798	3,654	52,452
Noosa [a]	22,939	n/a	22,939	29,403	n/a	29,403
Pine Rivers	46,959	2,187	49,146	42,519	2,187	44,706
Redcliffe	21,504	1,063	22,567	21,496	1,001	22,497
Redlands	47,922	1,888	49,810	41,695	1,653	43,348

a Noosa and Kilcoy data is from Cardno source. Boonah data is from QLD DERM, Annual water statistics 2006/07.
Source: QLD Government, Queensland local government comparative information 2006/07, except for Noosa, Kilcoy and Boonah: see **a**

2.2.1 Water supply

Figure 7 below illustrates the relative share of water connections for each council in SEQ, and Figure 8 shows the relative share of each Distribution Business. This indicates that DB Central is dominant in the region, with 47% of connections.

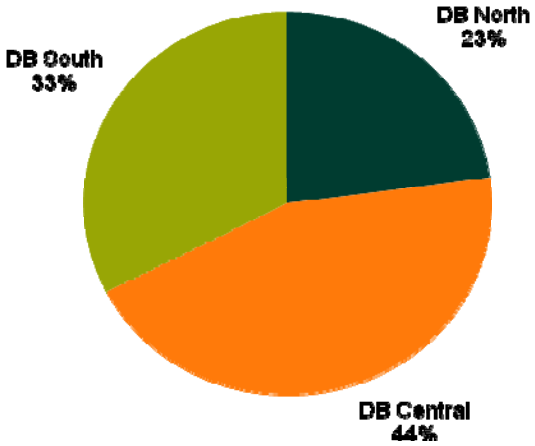
Figure 7 Number of water connections



Note: The figure for Lockyer Valley only includes data from Gatton, the figure for Scenic Rim only includes data for Beaudesert, the figure for Somerset only includes data for Esk and the figure for Sunshine Coast only includes data for Maroochy and Caloundra.

Data source: QLD Government, Queensland local government comparative information 2006/07.

Figure 8 Number of water connections, new distribution businesses



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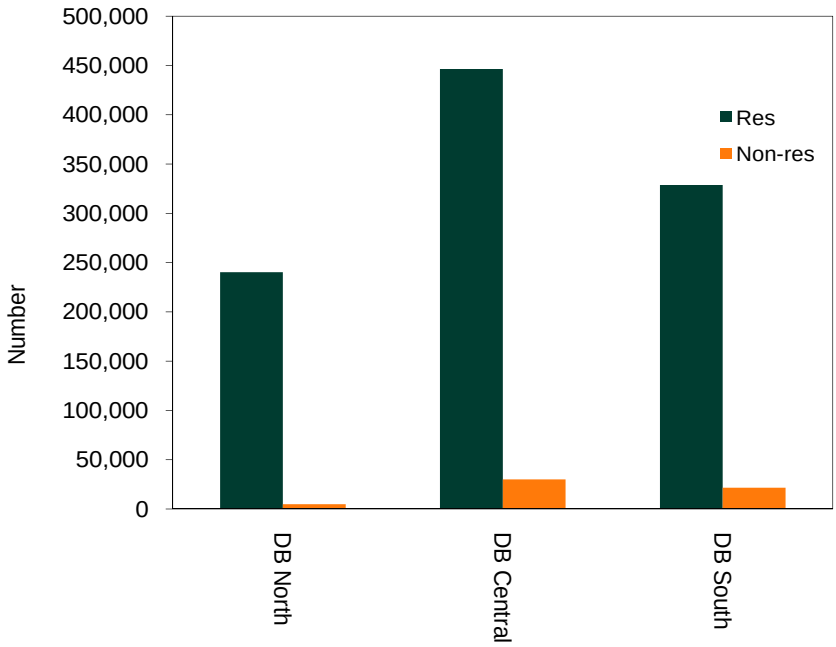
Data source: QLD Government, Queensland local government comparative information 2006/07

Figure 9 describes the proportion of residential and non-residential connections.

Figure 9 Comparison residential and non-residential water connections, new water businesses



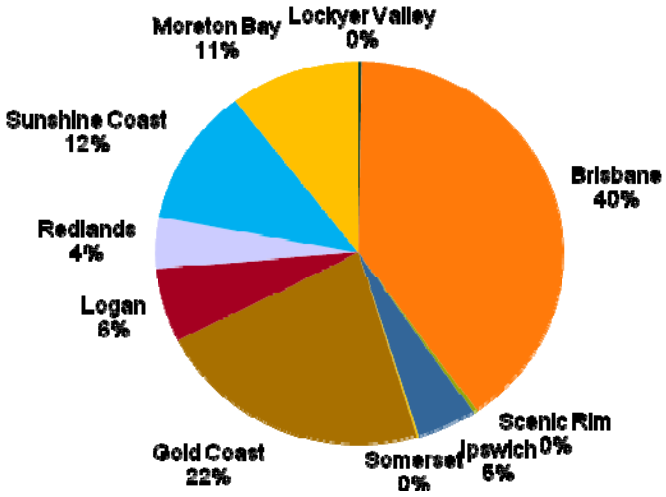
Note: The figure for Lockyer Valley only includes data from Gatton, the figure for Scenic Rim only includes data for Beaudesert, the figure for Somerset only includes data for Esk and the figure for Sunshine Coast only includes data for Maroochy and Caloundra.

Data source: QLD Government, Queensland local government comparative information 2006/07.

2.2.2 Wastewater

The proportion of sewerage connections by council and Distribution Business is set out below.

Figure 10 Proportion of sewerage connections, councils



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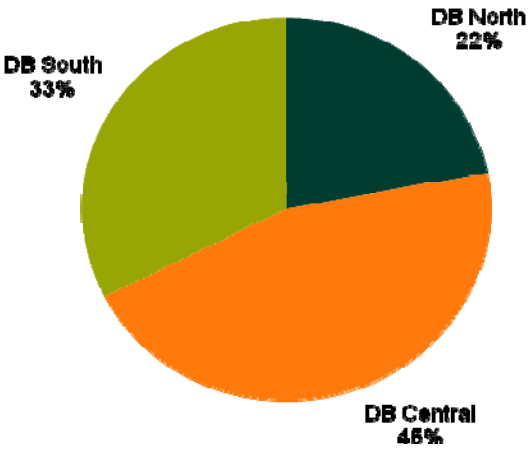
Data source: QLD Government, Queensland local government comparative information 2006/07

Figure 11 Number of sewerage connections

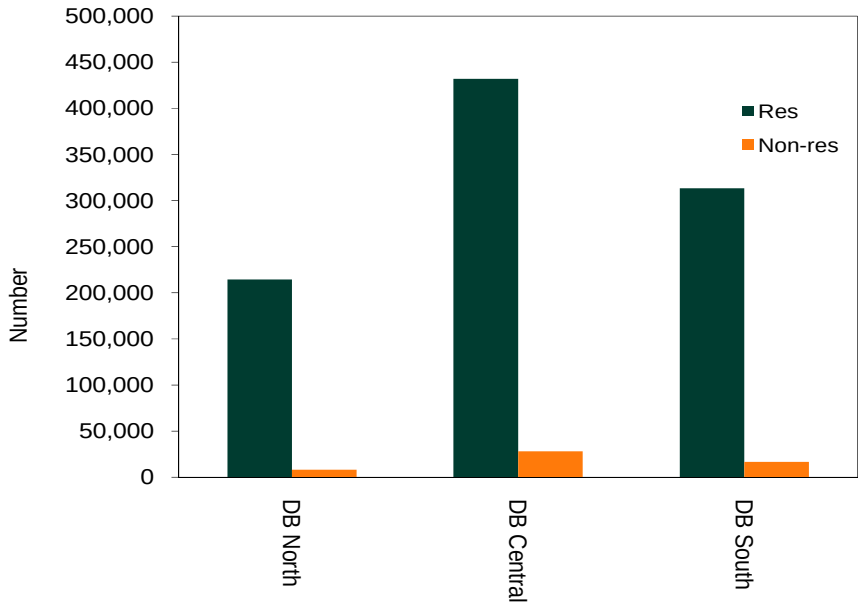


Note: The figure for Lockyer Valley only includes data from Gatton, the figure for Scenic Rim only includes data for Beaudesert, the figure for Somerset only includes data for Esk and the figure for Sunshine Coast only includes data for Maroochy and Caloundra.

Data source: QLD Government, Queensland local government comparative information 2006/07

The proportion of residential and non-residential connections to the sewer network is set out below.

Figure 12 Comparison residential and non-residential sewerage connections



Note: The figure for Lockyer Valley only includes data from Gatton, the figure for Scenic Rim only includes data for Beaudesert, the figure for Somerset only includes data for Esk and the figure for Sunshine Coast only includes data for Maroochy and Caloundra.

Data source: QLD Government, Queensland local government comparative information 2006/07

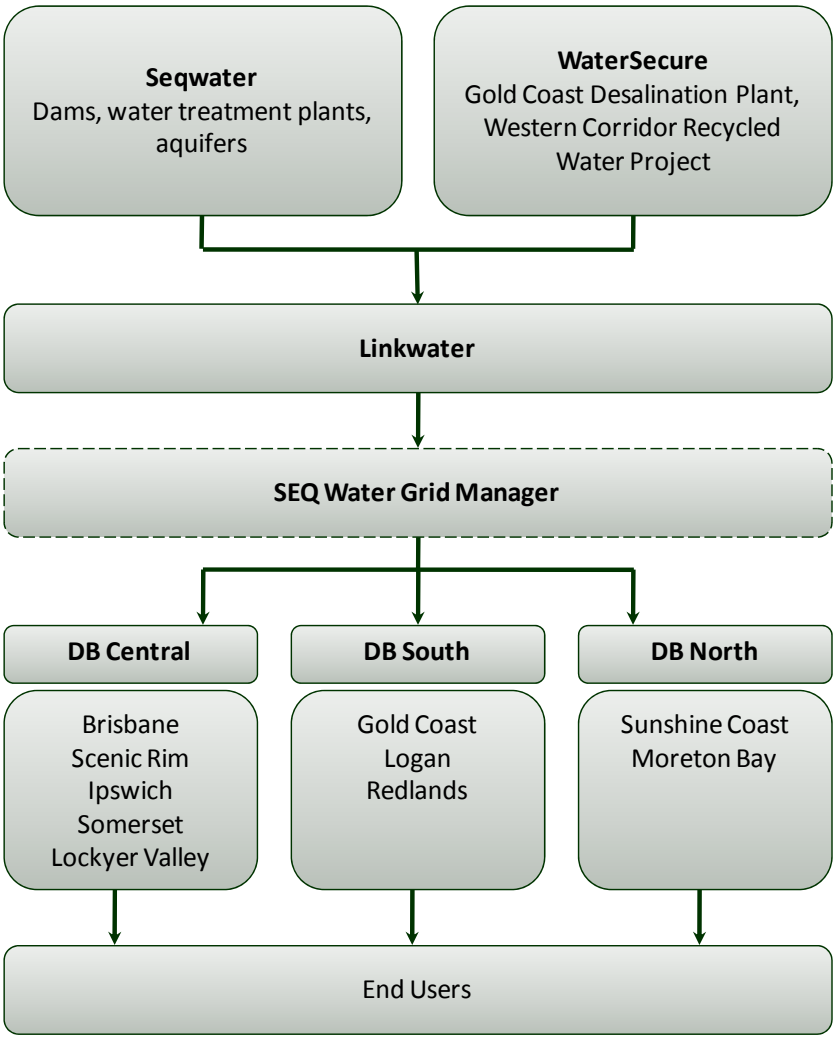
2.3 Supply relationships

This section examines the supply relationships for water, wastewater, recycled water and stormwater.

2.3.1 Water supply

Figure 13 below sets out these arrangements in relation to water supply.

Figure 13. Water supply structure – SEQ Water Grid



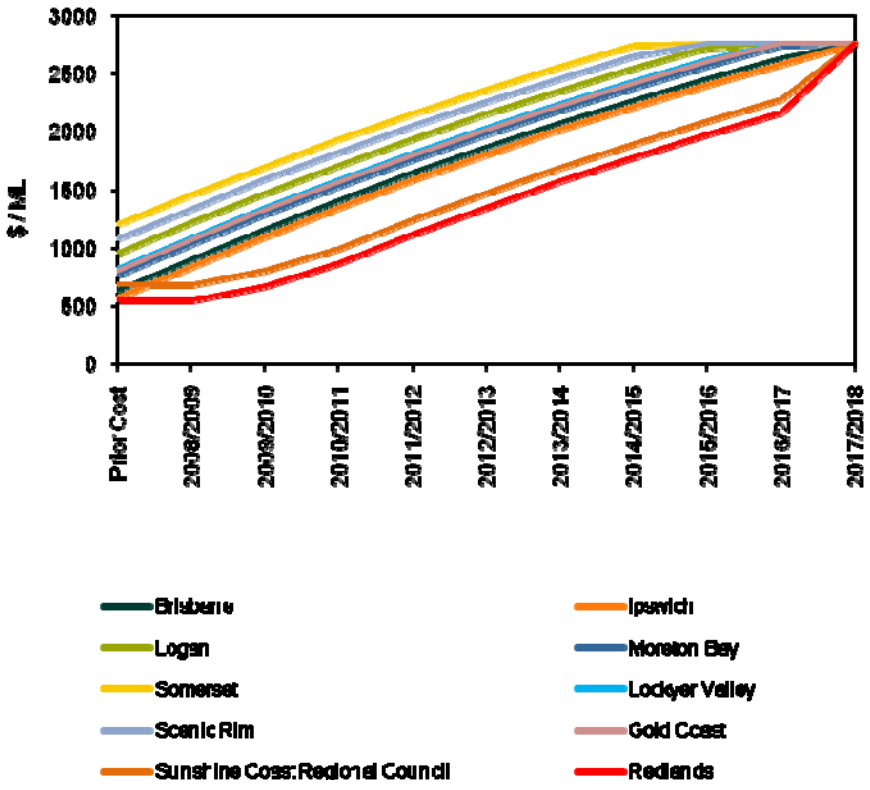
Source: Synergies.

Two councils – Brisbane and Logan - also own bulk transport assets, namely a connecting pipeline between the two city boundaries. Each council owns up the pipeline up to their respective boundaries, and together provide bulk transport services to the WGM.

There are also similar existing connections between Logan and Gold Coast at the Logan River Pump Station, between Ipswich and Scenic Rim at Warrill View and Somerset Regional Council and Lockyer Valley Regional Council at Minden. However, these connections will no longer be a transfer between water service providers once the three new distribution entities are established. There are a number of discrete networks that have no bulk transport assets.

Bulk water prices have been set for these Distribution Businesses, in accordance with a price path that will see significant price rises to $2,755/ML in real terms. The price path is currently referenced to council areas, pre-amalgamation, rather than each Distribution Business. Each council area faces a different price path (Figure 14 below).

Figure 14. Bulk Water Charge price path for Distribution Businesses ($2008)



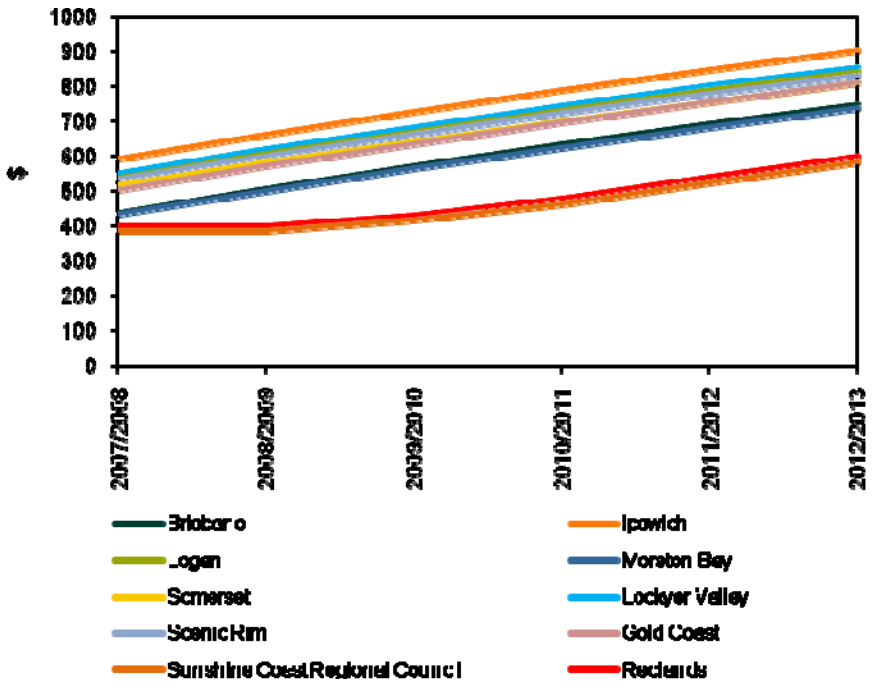
Source: Queensland Water Commission. Prices are subject to annual indexation.

The WGM also supplies some customers directly, including power stations and the Toowoomba Regional Council (following completion of a 14,200ML/annum pipeline connecting Wivenhoe Dam to Cressbrook Dam).

Seqwater also supplies some irrigators in the region.

The QWC has also projected impacts on residential water costs for each council. Figure 15 sets out these expected increases for households using 250kL/annum.

Figure 15. Projected household water costs – 250kL consumption ($2008)



Source: Queensland Water Commission.

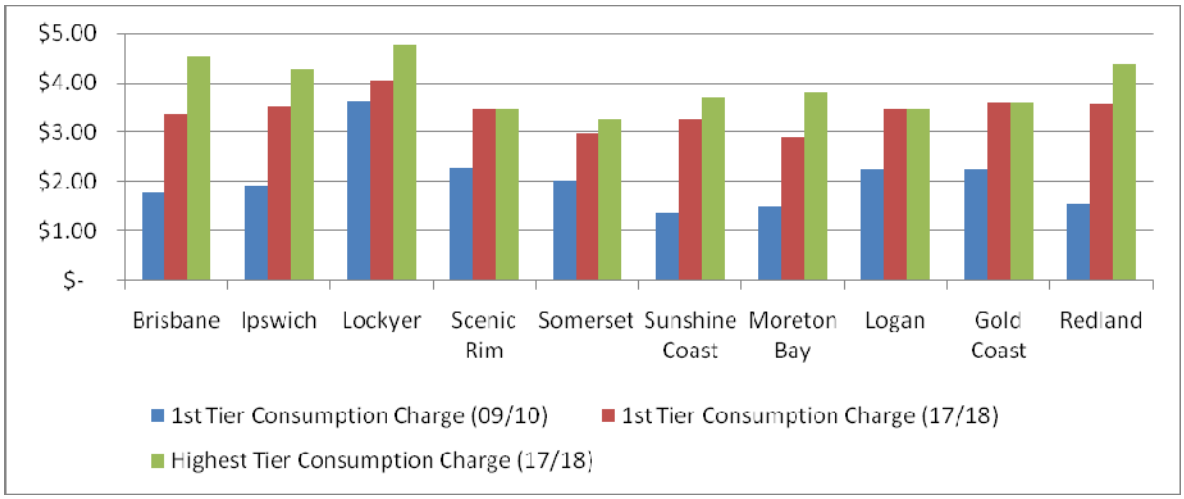
Note: Original data was expressed for each pre-amalgamated council. Where amalgamations have occurred, a simple average has been adopted.

This highlights the wide range of water costs between each council area.

We understand that most, but not all, councils are currently passing the bulk water charge through in their consumption charges. If this practice continues, and bulk water charges continue to be levied on a volumetric basis, then consumption charges will increase significantly. Figure 16 illustrates this increase, assuming all councils add the bulk water charge to their consumption charges.[19]

[19] We acknowledge this is not the case for all councils in their treatment of bulk water charges to date..

Figure 16. Current and indicative future consumption charges



Source. Synergies. Current (2009/10) consumption charges provided from QCA.

Note: prices are in real terms. We understand that some councils have incorporated part or all of the bulk water charge into the fixed tariff, hence the future consumption charges in this figure are indicative only about the possible level of consumption charges into the future.

2.3.2 Wastewater

The Distribution Businesses will own wastewater assets, including the sewer network and wastewater treatment plants. In essence, these businesses will control the supply chain for wastewater. DB Central also supplies wastewater to WaterSecure, for the Western Corridor Recycled Water Project (WCRWP).

2.3.3 Recycled water

Several councils currently supply recycled water to industry. This includes:[20]

- Brisbane City Council supplying recycled water from the WCRWP to Incitec Pivot, Boral and the Airport Link Project. The contractual relationships between WaterSecure, the WGM, Council and customers are not known;
- Brisbane City Council supplying water to Caltex (4.5ML/day) and other users (4ML/day) from its own recycled water plant; and
- Moreton Bay Regional Council supply to Amcor paper mill (4ML/day).

[20] Queensland Department of Infrastructure and Planning. *South East Queensland Infrastructure Plan and Program 2009 – 2026*. (2009). pp 59-60.

While additional sources of supply are not anticipated to be required until 2028, the draft South East Queensland Water Supply Strategy lists future purified recycled water schemes (PRW) – at the Gold Coast (Hinze Dam), Moreton (North Pine Dam), Sunshine Coast and Toowoomba as potential sources.[21] Sewer mining is also mentioned as a future supply source.

Recycled water and sewer mining is sourced from the Distribution Business' wastewater systems, and hence is relevant to this report.

2.3.4 Stormwater

Councils will continue to own stormwater assets. Like recycled water, stormwater harvesting has been identified as a potential (albeit limited) future source of water in the draft South East Queensland Water Supply Strategy.[22]

2.4 Retail contestability

The original reforms proposed by the QWC in May 2007 contemplated a single Distribution Business, and three (and later up to 10) council-owned retail businesses. It was envisaged that retail services could, in the future, be contestable. The implementation of reforms has not strictly followed this model, as the three Distribution Businesses will provide combined distribution/retail services.

The policy intentions for access to distribution infrastructure and retail contestability, under the current model, are not yet clear.

2.5 Asset transfers and values

The transfer of bulk water supply assets from councils to the new State-owned bulk water entities was based on a valuation of those assets by KPMG.[23] This valuation adopted a two-stage process:

- identifying the collective value of the water and wastewater assets (using a discounted cash flow valuation); then

[21] Queensland Water Commission. Water for today, water for tomorrow. South East Queensland Water Strategy – Draft. (March 2008). pp143 – 147.

[22] Refer to pp91—92.

[23] KPMG. *Queensland Treasury SEQ Water Transaction Unit. Valuation of SEQ Councils' Bulk Water Assets. Approach and Process*. (December 2008). This can be found at http://www.treasury.qld.gov.au/office/knowledge/docs/kpmg-valuation-of-seq-councils/kpmg-valuation-of-seq-councils.pdf

- allocating this overall value between the bulk, distribution and retail business activities.

Importantly, a discrete value for each asset (or activity) was not developed. Instead, KPMG, who undertook the valuations for Queensland Treasury, proposed:

> …to use the Cardno estimates of proportion of assets in bulk water, bulk transport and distribution as the basis for the allocation.
>
> No value will be assigned to the retail businesses as the South East Queensland Council of Mayors submission, that the water businesses effectively apply and receive a retail margin of zero, has been accepted. [24]

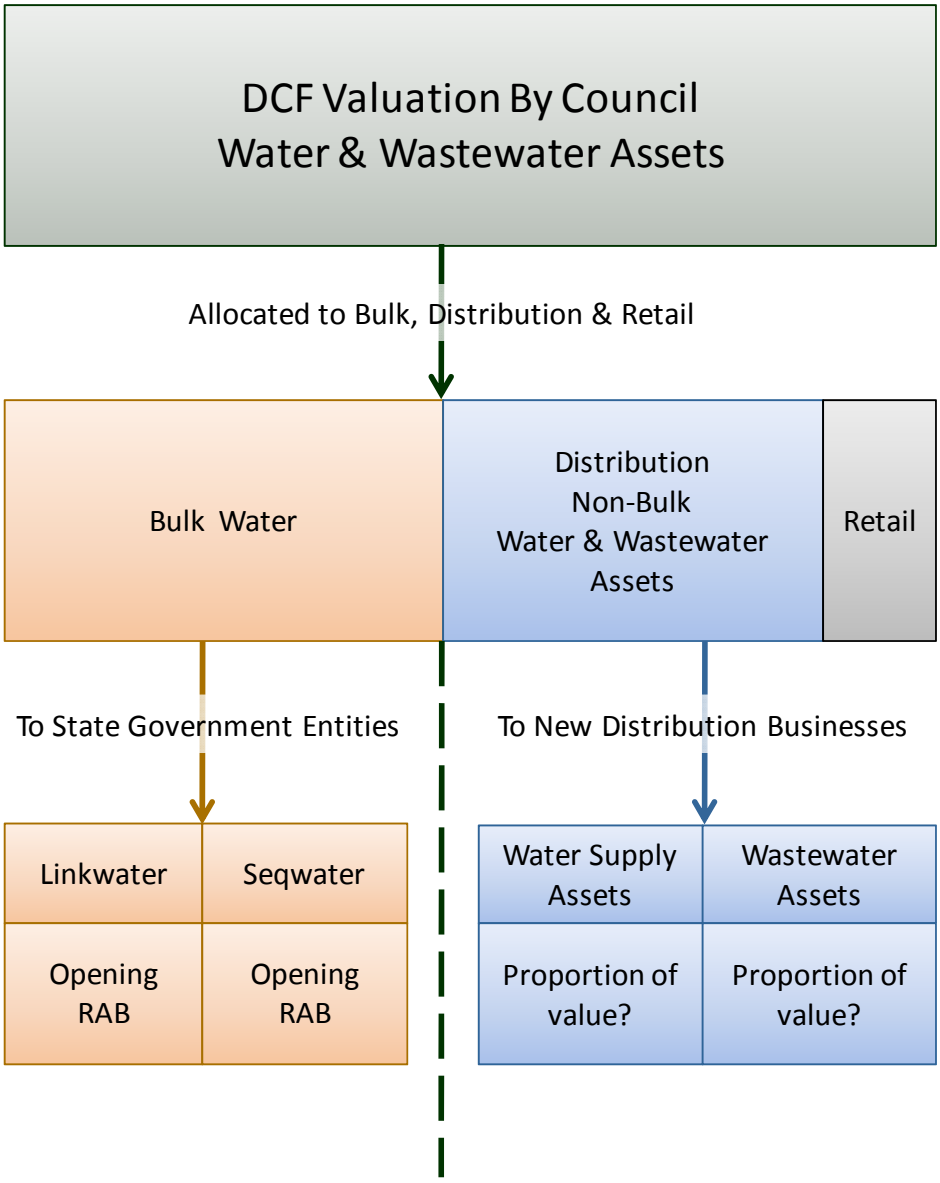
We understand that the allocation ultimately adopted for the valuation and transfer price for bulk water assets was based on proportional replacement cost of bulk and distribution (water and wastewater) assets. No value was ascribed to the retail component of the business as part of this process.

As such the value of the distribution assets is the residual of the total valuation, less the transferred bulk supply assets.

The Direction Notice to the QCA states that the Minister for Natural Resources, Mines and Energy and Minister for Trade (the Minister)are to advise of the values to be adopted for the opening asset base as at 1 July 2008. This process will need to ascribe a separate value to the water and wastewater assets (Figure 17 below refers).

[24] Ibid. p26.

Figure 17. Ascribing values to council water and wastewater assets



For this report, we have assumed that the asset value set by the Minister will be drawn from the original valuation as at that date, consistent with the asset values used for council assets transferred to the new entities and thus requiring the above split to be made.

2.6 Review of planning and development arrangements

As part of the SEQ water reforms, the role of supplying water and sewerage services to urban communities in SEQ will transfer from councils to the newly established Distribution Businesses. New processes will be required to enable coordination of water and sewerage services with land use planning and development assessment. This occurs under the *Integrated Planning Act (IPA) 1997*.

The QWC released a Discussion Paper in December 2008 which canvassed these issues. The paper noted that it is the role of state and local governments to plan and approve land use and development. In summary, it was proposed that the Distribution Business[25] be responsible for:[26]

- ensuring provision of infrastructure to support State and local government land use plans;
- develop regional water and sewerage infrastructure plans that are similar, and based on common planning assumptions, to Council Priority Infrastructure Plans (PIPs) - ie. a Regional Plan for Trunk Infrastructure
  - QWC recommends a 20 year horizon for this plan;
  - underpinned by agreed growth projections/planning assumptions that also underpin Council PIPs/SEQ Regional Plan;
  - reflected in Council PIPs to ensure developers have a single reference point for future infrastructure plans;
- assessing the water and sewerage aspects of development applications, including the specification of design standards currently set by Councils:
  - in relation to Reconfiguration of Lot (ROL) or Material Change of Use (MCU) approval, the Distribution Businesses will have authority as a concurrence agency to direct the council, as assessment manager (eg. in relation to conditions etc);
  - for operational works it is proposed that the Distribution Businesses have
    - advice agency status for non-trunk water and sewerage operational works;

[25] This paper was written prior to the Government decision to set up three distribution businesses instead of the originally proposed single distribution entity. Hence, the recommendations reflect possible roles of a single distribution entity. However, the issues and roles are likely to be similar for the three distribution businesses ultimately established.

[26] Queensland Water Commission, Impact of Water Reform on Land Use Planning and Development Assessment in South East Queensland, Discussion Paper, p. 12, p. 36

    - concurrence agency status for trunk water and sewerage infrastructure;
  - the Distribution Businesses will also set design standards (through development of a single design and construction manual for SEQ to replace existing council standards);

- assessing and accepting operational works (ie. final design and construction by developers of water and sewerage assets contributed to the Distribution Businesses;
- negotiate and administer Infrastructure Agreements for water and sewerage;
- potentially set and levy infrastructure charges (currently levied by Councils). Existing arrangements will continue until the second round of reforms relating to retail/distribution functions have been implemented.

Developers would continue to provide non-trunk water and sewerage infrastructure for developments (ie. infrastructure internal to the development). Distribution Businesses could also choose to adopt a more proactive approach to supplying trunk infrastructure rather than requiring developers to provide it for their own and other developments, as is often the case now.

It should be noted that these are QWC proposals/recommendations at this stage. The actual detail of these reforms is yet to be finalised.

3 Service description

This chapter describes the water and wastewater services and their attributes.

3.1 Summary of services offered

There are four types of water supply products available from the Distribution Businesses:

- water supply at drinking water quality, delivered to premises (ie via distribution network);
- water supply at drinking water supply, made available at a common offtake (eg standpipe);
- water supply at other water quality (eg recycled water) delivered to premises via a separate distribution network; and
- recycled water or wastewater, made available at a common offtake (eg standpipe).

There are three types of water supply products available from the Distribution Businesses:

- acceptance and disposal of sewerage directly from a user's premises to the sewer network;
- acceptance and disposal of trade wastes from a users' premises to the sewer network; and
- acceptance and disposal of wastes at a wastewater treatment plant.

Table 3 below provides an overview of the services currently offered by each council.

Table 3. Summary of services offered (based on published material)

Entity	Council Area	Water supply (delivered)	Water Supply (Standpipe)	Recycled Water (delivered)	Effluent sales (standpipe)	Sewerage (via sewer)	Trade Waste (via sewer)	Waste taken at treatment plant
DB Central	Brisbane	✓	✓	✓	X	✓	✓	✓
	Scenic Rim	✓	✓	X	✓	✓	n/a	✓
	Ipswich	✓	✓	✓	✓	✓	✓	✓
	Somerset	✓	X	X	X	✓	✓	✓
	Lockyer Valley	✓	✓	✓	n/a	✓	X	✓
DB South	Gold Coast	✓	✓	✓	X	✓	✓	n/a
	Logan	✓	✓	X	✓	✓	✓	n/a
	Redland	✓	✓	X	✓	✓	✓	✓
DB North	Sunshine Coast	✓	✓	X	X	✓	✓	n/a
	Moreton Bay	✓	✓	✓	X	✓	✓	✓

Note: for some councils, the scope of services was difficult to discern from published data. This represents the best estimate from this information. Where there was no information at all, this has been indicated as n/a.

Other miscellaneous services include connection and disconnection services, inspections, meter readings and testing etc. Some councils have listed prices for inspection and assessment of septic systems, although we would assume this function would not be transferred to the new Distribution Businesses.

Some council water businesses also offer laboratory services.

3.2 Service quality in setting infrastructure requirements

A key element of PIPs for Councils is the desired standards of service, which are typically expressed in terms of planning and design outcomes. These will guide the provision of trunk infrastructure.

These standards have varied across councils, as have the 'demands' and factors used in calculating future required infrastructure, resulting in differing approaches to network planning and delivery. For example, demands may be expressed as Equivalent Tenements, Equivalent Population or Equivalent Demand units. Variations also occur in the assumptions and methodology used for calculating network requirements (eg average dry weather flow (ADWF), peak wet Weather (PWWF) and different demand

units such as litres/person/day and litres/tenement/day).[27] As such, standardising desired service levels and demand assumptions will be an important step prior to the development of a Regional Plan for Trunk Infrastructure for water and wastewater.

In terms of service commitments to customers, the Bill establishing the new Distribution Businesses provides for a Customer Water and Wastewater Code to be developed to provide for the rights and obligations of Distribution Businesses and their customers. Matters the Code may provide for include:[28]

- rights and obligations of distributor-retailers and their customers relating to the availability of water services and wastewater services;
- minimum and guaranteed service standards for water services and wastewater services;
- the imposition of a civil penalty for failure to comply with the service standards;
- the terms of supply contracts for the services;
- the marketing conduct of distributor-retailers relating to customers;
- meters and metering;
- dispute resolution processes for customers; and
- an entity to administer the code.

[27] Queensland Water Commission, Impact of Water Reform on Land Use Planning and Development Assessment in South East Queensland, Discussion Paper, p. 48

[28] South-East Queensland (Distribution and Retail Restructuring) and Natural Resources Provisions Bill 2009, section 93 - 94

3.3 Water supply

There are a number of definitions in relation to water supply and wastewater services. The legislative definitions are summarised in Attachment 1. For the purpose of this report, the following definition has been adopted:

> The supply of drinking water, recycled water or effluent from the service provider's infrastructure, to either:
>
> - a customer's offtake: or
> - a supply point owned by the service provider, from which a customer can draw water (eg a standpipe).

This definition encompasses recycled water and effluent sales (including sewer mining) as they are substitutes to drinking water that can be offered by each Distribution Business.

Water distribution infrastructure includes reservoirs, pumps, pipelines (including trunk mains and reticulation infrastructure), meters, valves etc.

3.3.1 Categories of users

There are a number of different types of users for this service. These can be classified as follows:

- residential users – taking water for household water uses;
- commercial users – using water at commercial premises, where water is an incidental (but necessary) requirement for their business operations. This would include, for example, hotels, educational institutions, and workplaces requiring water for ablutions, drinking and minor cleaning;
- industrial users – who require water as an input to their production process. This would include, for example, food production, breweries and drink manufacturers, etc.

There are also some users who on-supply water, for example businesses transporting drinking water to residential tanks and pools. These businesses typically draw water from standpipes at designated locations.

3.3.2 Service outcomes

The essential features or outcomes of a water supply service are summarised in the table below.

Table 4. Service outcomes – water supply

Feature	Description	Outcome
Quality	The quality characteristics of the water supplied at the customer's offtake. The Distribution Businesses receive water at a minimum of drinking water quality into their potable networks via contracts with the WGM.	Quality is typically fit-for-purpose. Drinking water standards are set by regulation. There are guidelines in place for the supply and use of recycled water in other applications. Raw water is typically provided 'as is'. The *Water Supply (Safety and Reliability) Act 2008* is the key regulation in relation to drinking water quality. These criteria are typically referenced against the Australian Drinking Water Guidelines.
Pressure	The force at which water is available at an offtake.	A minimum pressure is typically used as the service measure.
Flow rate	The rate at which water is supplied (volume / time).	A flow rate is typically expressed in terms of litres/second or ML/day at which water can be taken. For major users, there might be time-of-day or maximum volume conditions as well.
Supply Continuity	The level of interruption to the service caused by asset breakdown or operational error.	The Strategic Asset Management Plan, required under the *Water Supply (Safety and Reliability) Act 2008* is the key reference document, setting service targets for continuity.
Reliability (Level of Service)	The likelihood of water supplies being restricted, and the severity and duration of those restrictions.	For SEQ, this is now determined through regional water planning processes. Refer to the draft South East Queensland Water Supply Strategy.
Total volume	The minimum or maximum water available to the user.	This is more of a constraint than a service feature. For residential users, the QWC sets these maximums and the measures taken to address over-use. Commercial and industrial users must comply with a Water Efficiency Management Plan (WEMP).

Different users can have different needs in terms of these service outcomes, in particular between residential and industrial users. The table below provides a summary.

Table 5. General needs of user type, by product feature

	Residential	Commercial	Industrial
Water quality	Essential for drinking water and some indoor uses. Fit for purpose standard for some other uses (eg ablutions) or outdoor uses (eg gardens).	Essential for drinking water and some indoor uses. Fit for purpose standard for some other sues	Essential for drinking water component. Otherwise, drinking water standard is not necessarily fit-for-purpose. A higher or different standard may be required, depending on the use and application.
Pressure	Essential.	Essential.	Can be designed for alternative pressures, depending on plant configuration and requirements.
Flow rate	Essential	Essential	Rate of supply needs to be able to meet rate of production. Internal customer network can allow for variations in the design (e.g. by incorporating storage)_
Supply continuity	Minor (short) interruptions can occur without significant consequences.	Minor (short) interruptions can occur without significant consequence, though this will vary between users (eg higher impacts can be expected for hotels, hospitals etc). Critical customers can reduce the risk through the design of their internal network (e.g. incorporation of onsite storage and/or multiple supply connections)	Impacts of interruption depend on the nature of process. Impacts may be high where sudden interruption causes plant damage or loss of production. Users sometimes have on-site storage to mitigate.
Reliability	Have some capacity to bear restrictions – for example for non-essential outdoor use.	Limited capacity to bear restrictions without impact once all possible water conservation measures have been implemented.	Limited capacity to bear restrictions without impact once all possible water conservation measures have been implemented.

Despite these often differing needs, there is generally a high degree of homogeneity in the potable water supply product offered by the Distribution Businesses. The scope for differentiation for each product feature is discussed below.

Water quality

The nature of the distribution network requires that the highest use requirement – drinking water – governs the quality delivered for all other uses given water cannot be separated in a single pipe. However, many of these other uses do not require water treated to this standard, which is governed by regulation[29].

[29] Refer to the *Water Supply (Safety and Reliability) Act 2008*, and in particular the provisions dealing with drinking water regulation. For example, each drinking water service provider must develop and comply with an approved Drinking Water Quality Management Plan, including drinking water quality criteria. These criteria are typically referenced against Australian Drinking Water Quality Guidelines.

The WGM can provide water at varying qualities. For example, it can supply raw water sourced from Seqwater's storages[30], or recycled water from WaterSecure, to industrial users. Indeed this currently occurs in relation to the Swanbank and Tarong power stations.

Different quality water cannot be transported within the same network, and hence the transportation costs may be higher for other sources (offsetting any savings) depending on the location of the user. This can require, for example, dual pipe reticulation schemes supplying residential users with separate drinking and recycled water networks, as currently occurs in some councils (eg Moreton Bay).

Recycled water (and direct sale of effluent, including sewer mining) is typically treated to a lower quality or is not fit for the same range of uses (eg drinking)[31]. Quality varies in accordance with the wastewater characteristics, and the treatment processes employed. The Department of Environment and Resource Management has established guidelines governing the standard and use of recycled water,[32] and there are also national standards for recycled water.

Pressure

The pressure attribute of a service is normally expressed in terms of meeting a minimum pressure standard.[33] In some cases, greater pressure may be available depending on topographical and hydraulic characteristics of the network.

Within a reticulation system, it is difficult and costly to manage pressure in a way that would purposely differentiate pressure at different connections. However, large customers may have their pressure and/or flow rate controlled from the service provider where there are specific supply issues.

Flow rate

A different flow rate can be provided at each connection, controlled by the size (diameter) of that connection and associated meter or for specific customers this can

30 Supplied under the Water Grid Manager's water entitlements from those storages.

31 We note that recycled water from the Western Corridor Recylced Water Project is treated to standard to allow it to be ultimately used in the drinking water supply, subject to a number of measures and other treatment barriers.

32 This can be found at http://www.nrw.qld.gov.au/water/regulation/recycling/pdf/water_quality_guidelines.pdf

33 For example, the guidelines for preparing Strategic Asset Management Plans (SAMPs) require service providers to nominate a minimum pressure. These guidelines can be found at http://www.nrw.qld.gov.au/compliance/wic/pdf/guidelines/guidelines_03.pdf

include a control valve or pressure reducing valve. The demand within a network of course cannot exceed the network's capacity.

The flow rate attribute is generally expressed in terms of volume / time (eg ML/day, L/sec etc) or by the size of the connection itself.

It is also conceivable that off-peak and peak services could be provided with the appropriate meter technology, although this is most likely to have application for very large industrial users located in parts of the network with capacity constraints.[34]

Supply continuity

Customers requiring a greater level of continuity would generally develop their own onsite storage reserves.

Reliability (level of service)

Access to water during droughts is typically governed by a restriction regime. These restrictions relate to the uses of water, and hence they embed different reliability attributes for each user. For example, residential water users will face different types of restrictions to commercial and industrial users under drought conditions, with restrictions at those times expected to curtail residential demand by up to 20%. Box 1 below provides a summary of the proposed level of service for residential users.

Box 1. Proposed level of service objectives – SEQ, residential users

The draft South East Queensland Water Strategy (SEQWS) sets out the level of service (LOS) objectives, which are relevant as they frame the extent of restrictions to apply when faced with future droughts. This LOS set out in the SEQWS is:

- *Severity* – medium level restrictions (see below);
- *Duration* - will last no more than six months no more than once every 50 years, on average;
- *Frequency* –restrictions will not be triggered more than once every 25 years, on average.

Water planning is also based on regional storage reserves reaching 10% of capacity no more than once every 1000 years.

It is proposed to implement medium level restrictions to further reduce demand (on top of permanent restrictions already in place) when faced with a drought trigger. These restrictions are to primarily focus on reducing outdoor water use, and include:

- use of a single hand held hose (with twist/trigger nozzle) for two 30 minute periods on allocated days to:

[34] It is worthy to note that there is often significant 'headroom' in capacity due to provision of capacity for fire fighting purposes in the distribution system..

- water gardens
- wash cars
- undertake general outdoor cleaning, such as wash houses and hose outdoor areas other than paths and driveways
- use of a bucket to:
- water gardens between 4pm and 8am on any day;
- clean outdoors at any time; and
- use of efficient irrigation systems to water gardens.

Source: Queensland Water Commission.

It does not appear that non-residential users would face additional restrictions in times of drought under the draft plan.

Volume limits

Users do not typically face volumetric limits, although permanent conservation measures (or permanent restrictions) are emerging as standard practice across metropolitan centers. Moreover, these restrictions are different for residential and non-residential sectors. The proposed permanent conservation measures for residential and non-residential water users, to apply as permanent measures from 1 December, 2009, are set out in Attachment 2.

3.3.3 Substitutes

Different users will have different substitutes available to them in relation to drinking water from the potable network. These are outlined in the table below.

Table 6. Potential substitutes to drinking water

User	Use type	Potential substitute
Residential	Drinking	Bottled water, tank water.
	Other internal use	Tank water, recycled water (eg for toilet use), water efficient appliances.
	External use (gardens, washing etc)	Tank water, recycled water, water efficient appliances, greywater
Commercial	Drinking	Bottled water, tank water.
	Other internal use	Tank water, recycled water.
	External use	Tank water, recycled water, greywater
Industrial	Process water	Recycled water, greywater, sewer mining, stormwater
		Access to raw water, and treat on-site.
		Process change to increase cycling (on-site water recycling) or otherwise reduce total water consumption.

Bottled water (consumed in the home) is significantly more expensive than drinking water from the reticulated network – for example a 500ml container at $1.50 purchase price costs the equivalent of $3,000 per kL.

For households with existing rainwater tanks, there will be nil cost in substituting water from these tanks for drinking water supply (apart from any pump cost). Furthermore, while some or all of this water may be for non-potable uses, this use still displaces drinking water supplies from the service provider.

Water users without tanks, or considering expanding their tank capacity, will face the cost of purchase and installation into the future. There have been a number of studies on this cost. For example, the levelised cost to the user in Brisbane for a large (10kL) rainwater tank supplying both indoor and outdoor use has been estimated at between $2.09/kL to $5.80/kL.[35] Roof area was a key factor in this per kL cost, with houses with larger roofs (eg 200 sq m) yielding more water than those with smaller roof areas (eg 50 sq m). The cost of plumbing the tank into the house was another factor.[36] The cost for outdoor-only use from a tank was estimated at between $1.25/kL and $3.06/kL, across a range of tank and roof sizes.[37]

[35] The QWC has also estimated the cost of rainwater tanks in SEQ at around $2/kL to $6/kL – refer to the draft South East Queensland Water Strategy, p80.

[36] A range of tank and roof sizes were examined in this study. We have adopted the largest tank size (10kL) in order to compare costs from the perspective of potential bypass.

[37] Marsden Jacob Associates. *The cost-effectiveness of rainwater tanks in urban Australia* (March 2007). The authors' notes that the precise costs will vary based on individual situations, including whether a pump was required at the tank to supply the garden or internal uses.

The yield (in Brisbane) from a large, 10kL tank was assessed at 124kL for indoor/outdoor use, compared to 100kL for outdoor use only. This compares to a three-person household using 230l/person/day[38], or 250kL per annum. The reliability of tanks are not comparable to larger water storages, as there may not be sufficient capacity to sustain supply through long periods without rainfall.

An indicative cost for 5kL of potable water delivered to a tank $255 delivered, or just over $50/kL. [39]

For recycled water, the QWC has assessed the cost of dual reticulation systems at around $3.50/kL. [40] This might displace water from the drinking water network for outdoor or non-potable use, however involves the cost of treatment as well as transport/distribution. This option would be most suitable for new, greenfield residential developments located near wastewater treatment plants, in order to minimise transport costs and take advantage of the economies of density, or as a measure to overcome issues with an environmental discharge (highlighting the interrelationship between water supply and wastewater in the water cycle).

The levelised cost for high quality recycled water from the Western Corridor Recycled Water Project was of a similar order. [41] This relates to very high quality recycled water, at a large scale, and major water transportation infrastructure. Recycled water for local industrial demand, at a lower quality and closer distance, could be expected to be at a lower cost.

The Healthy Waterways Strategy has also identified the potential for micro-scale wastewater treatment plants to assist, in part, in locating wastewater and recycled water sources near end uses.

> Costs increase as the distance the recycled water is transported to the point of use increases. Land use planners in SEQ's growth areas need to be cognisant of this fact, and should plan to locate high-water-use industries near major wastewater treatment plants. Another approach may be to move towards more decentralised wastewater treatment plants (e.g. estate-scale and suburb-scale systems), where

[38] This is the volume target assumed by the QWC for long term planning purposes, as per their draft SEQ Water Strategy.

[39] Based on a quote to provide 5kL to a tank in Brisbane's Southern Suburbs.

[40] Refer to the draft South East Queensland Water Strategy, p80.

[41] Refer to the draft South East Queensland Water Strategy, p80.

effluent can be used locally for irrigation of public open space, industrial purposes, and dual reticulation in residential areas.[42]

The above indicative costs of substitutes compare with the cost of water supply from the reticulated drinking water network in SEQ, which are currently between $2.00/kL and $3.00/kL for 2009/10, based on 250kL/annum consumption, including fixed access charges.[43]

However, increases in bulk water prices will see household water costs rise significantly. For example, if current inclining block tariffs remained, consumption charges for the top tier would rise to up to around $4.50/kL at the end of the price path (in $2008). [44]

The table below provides a summary of the various substitutes. While absolute values are indicative the merit order of each substitute is informative.

Table 7. Indicative merit order of substitutes

Substitute	Potential use	Indicative cost ($/kL)
Bottled water	Drinking	$3,000
Transported potable water (trucks)	All	$50
Tank water (new)	Indoor / Outdoor	$2.09 - $5.80
Recycled water	Outdoor (dual reticulation)	$3.50
Recycled water	Industrial / PRW	$3.50
Water from the distribution network, consumption charges only.	All	$1.50 - $4.50
Tank water (new)	Outdoor only	$1.25 - $3.06
Tank water (existing)	Outdoor or indoor	Range from $0 to the cost of pumping.

Of course, not all of these are perfect substitutes, and it is unlikely that a user would want to bypass the network and rely on these substitutes instead, although this could occur for industrial users taking recycled water. As such, for households these measures should be compared to avoided consumption charges from the distribution network.

[42] South East Queensland Healthy Waterways Partnership. *Point Source Pollution Management Action Plan.* (December 2007). p24.

[43] Source: information provided to Synergies from the QCA.

[44] Assuming current levels of council charges continue, which are typically over $2.00/kL. Bulk water charges are forecast to increase to $2.76/kL by 2017/18.

3.4 Wastewater services

There are a number of definitions in relation to water supply and wastewater services. The legislative definitions are summarised in Attachment 1.

For the purpose of this report, we have adopted the term wastewater service to mean the following:

> The acceptance of sewerage or water-borne trade waste to the sewer network, or the acceptance of waste transported to a wastewater treatment plant.

Sewerage is human waste from residential, commercial or other premises. Trade waste is water-borne waste from business, trade or manufacturing premises.[45]

Wastewater services are normally provided via access to the sewer network. However, waste can also be accepted directly at the treatment plant, from trucks transporting waste to these locations. These wastes need not be water-borne – for example wastes from grease traps are commonly accepted at wastewater treatment plants. As such, some users of the wastewater service do not use or require the sewer network, but rather transport the waste directly to the treatment plant.

Wastewater infrastructure includes pipes and underground sewer mains, pumps, wastewater treatment plants and discharge infrastructure (eg pipelines).

3.4.1 Categories of users

There are a number of different types of users for wastewater services, who can be classified in a similar manner to the categorisation used above for water supply:

- residential users – discharging sewerage into the sewer network;
- commercial users – discharging sewerage into the sewer network, albeit at a larger scale (eg hotels, restaurants etc);
- industrial users – who look to discharge waste byproduct from their production processes into the sewer network (eg trade waste); and
- commercial waste disposal providers – for example providing services to remove grease trap waste, or septic waste, from a user's premises and then disposing this waste directly at a wastewater treatment plant.

These users will require and receive different service outcomes.

[45] This description is taken from the definition in the *Water Supply (Safety and Reliability) Act*.

3.4.2 Service outcomes

The features of the wastewater service are summarised in the table below. Each Distribution Business controls the supply chain, and as such would be expected to be responsible for delivering against these service outcomes.

Table 8. Service outcomes - wastewater

Feature	Description	Outcome
Quality accepted	The acceptable quality characteristics of the water-borne waste at the customer's discharge point or the waste presented at a treatment plant. This might be measured in terms of concentration and/or mass.	This is essentially a constraint on users, with the outcome being the standard of that constraint. In some cases, this is simply applied by the type of use (eg sewerage connection to residential premises, or business type). For others, the constraint relates to the characteristics of the waste itself. Regulation governs discharges to the sewer, including prohibited substances, under the *Water Supply (Safety and Reliability) Act 2008*. Service providers are also constrained in terms of their discharges to the environment, and may also face general environmental obligations. There may also be outcomes required from Drinking Water Quality Management Plans in relation to Purified Recycled Water.
Flow rate	The rate at which sewerage or trade waste can be discharged to the sewer network.	A constraint as to the maximum rate of discharge to the sewer. This is typically set through the size of connection.
Continuity	The extent of interruption to the service from sewer chokes.[46]	The Strategic Asset Management Plan, required under the *Water Supply (Safety and Reliability) Act 2008* is the key reference document, setting service targets for continuity.

There are legislative constraints as to what can be discharged into the sewer.[47] Discharges, including trade waste and swimming pools, can only be discharged to the sewer with the consent of the service provider.[48]

Service provider performance can also be measured in terms of sewer leaks however this is more relevant in terms of public health and third party impacts, rather than an aspect of service to customers.

The needs of each user in relation to these outcomes are summarised in the table below.

[46] This is a performance measure in the Guidelines for Preparing Strategic Asset Management Plans (February 2002). .

[47] Refer to sections 193(4) and 193(5) of the Water Supply (Safety and Reliability) Act.

[48] Refer to section 193(3) of the same Act.

Table 9. General needs of user type, by product feature

	Residential / Commercial	Industrial	Waste disposal provider
Quality accepted	Not relevant, given sewerage is accepted into the sewer network as homogenous quality.	Critical. Determines standard of acceptable discharge.	Critical. Determines standard of acceptance of waste.
Flow rate	Critical.	Critical.	Not relevant, as waste istransported to the treatment plant directly and does not use the sewer network.
Continuity	Little capacity to bear service interruptions.	Critical.	Less relevant given waste is transported via trucks (some capacity to store).

It is also worth to noting that the owner of the wastewater system has discretion in deciding whether or not to allow a potential user to connect to an existing sewer or allow waste to be disposed at a treatment plant.[49] The criteria for making these decisions are usually contained in trade waste policies.

3.4.3 Product differentiation

Quality

The standard of waste accepted for treatment will be constrained by the discharge authorisation for a treatment plant, and the installed treatment process. The acceptable quality limits will vary between different treatment plants, depending on the discharge license at each. For example, older treatment plants may enjoy relatively lighter constraints – for example concentration-based limits on only a few contaminants (eg nutrients). Newer treatment plants, or those recently upgraded, are more likely to have tighter discharge license limits reflecting current day environmental standards.[50]

Treatment plants do not generally remove all contaminants. For example, many treatment plants will remove a percentage of nutrients, but will not remove some contaminants such as metals. In this case, by accepting trade waste that contains those metals not removed by the treatment process, the service provider is effectively agreeing to transport that waste via the sewer network and discharge it under its discharge license – no treatment for those contaminants is provided.

[49] Unlike water supplies or sewerage, whereby connection of properties to an existing network is usual practice and does not normally involve the same degree of scrutiny.

[50] We understand that in practice, existing discharge licenses are only revisited upon an application to change or upgrade the treatment plant.

Flow rate

The rate at which trade waste can be discharged into the network is different for different users, depending on their requirements. This can be managed through the size of the connection.

Continuity

Given the public health implications of a breakdown in the sewer network (including leakages), systems are typically designed to achieve a balance with the highest possible reliability. Moreover, sewer networks are usually constructed according to natural catchments to maximise the use of a gravity network and thus minimise the need for pumping. They therefore tend to be decentralised around a number of different wastewater plants, compared to water supply networks which tend to be interconnected and linked to one or a few water sources and accompanying treatment plants. Furthermore, water supply networks incorporate storage, whereas wastewater networks are only designed for emergency storage.

Continuity of the treatment service is determined by the operation of the treatment plant itself. The processes employed at treatment plants mean that breakdowns are rare, although process failures can occur. Moreover, treatment plants can (subject to license conditions) be bypassed and wastewater discharged directly or with reduced treatment to the environment in the event of plant breakdown or if the hydraulic capacity of the plant is exceeded (eg due to a wet weather event).

Given the above, there is probably limited (if any) scope to differentiate the service based on service continuity.

3.4.4 Substitutes

There are a number of potential substitutes for wastewater services in relation to either or both of the sewer transport and treatment components (refer Table 10 below).

Table 10. Potential substitutes

Product	Substitute
Sewerage	Pump-out septic systems require regular servicing to remove waste. This effectively results in the transport (sewer) component to the service to be substituted using other waste service providers to truck the sewage to a wastewater treatment plant. Trucked sewage could also be transported to other waste facilities. Onsite treatment and other systems, which dispose effluent into the soil via trenches or pipes, into an absorption field, avoid the need to transport and treat sewerage altogether. Micro systems may also emerge at an estate or development scale.
Trade Waste	It is possible to discharge directly to the environment, although this will depend on locational factors (eg proximity to a watercourse). This would require the customer to obtain and comply with a discharge authorisation. It is also possible to use a waste disposal service for liquid waste, although this waste may end up being taken to a wastewater treatment plant of the service provider's choosing. On-site treatment or 'polishing' to partially remove contaminants or nutrients before discharging to the sewer.
Non-waterborne waste	Disposal to other waste facilities (eg landfill), rather than at a wastewater treatment plant.

In SEQ, it has been estimated that some 127,000 households are not connected to a sewer but have onsite wastewater treatment facilities instead. Of these, 80% are estimated as using septic tanks. [51]

[51] South East Queensland Healthy Waterways Partnership. *Point Source Pollution Management Action Plan.* (December 2007). p24.

4 Prices and cost structure

This chapter examines the current prices charged by the 10 councils in SEQ for water supply and wastewater services and the nature of the network and its underlying cost structure.

4.1 Water supply

The reticulation network servicing the bulk of connections is highly interconnected within council boundaries (pre-amalgamation). However, Councils have ongoing pressure and leakage management programs to establish and manage smaller water supply zones within their networks. Furthermore, there is very little interconnection between Distribution Businesses' networks. However, there are a number of discrete (ie standalone) water distribution networks located in remote locations. Councils adopt a single postage stamp price within council boundaries. Most councils set differentiated prices based on user type (eg commercial and industrial users typically pay more), although there does not appear to be a clear basis for this differentiation based on cost of service differences.

This section examines these issues in detail.

4.1.1 Service areas and network configuration

The network is difficult to describe briefly as depending on prevailing demands and conditions has a number of complex interactions and potential operating scenarios. A summary of the water treatment plants and import and exports for the water supply zones for billing purposes is given in Table 11 and interconnections are briefly described further below. The network is also shown on the maps in Attachment 6. All the possible operating combinations and scenarios have not been described.

Table 11. Summary of water supply sources, imports and exports for the existing water supply zones for billing purposes for zones operating inconjunction with the bulk transport grid

Distribution Business	Retail Zone	Water Supply Sources (Seqwater)[1]	Imports and Exports including Linkwater (note: Linkwater assets by their nature interconnect different bulk supply sources and allow for different supply sources combinations)
DB North	Maroochy	Image Flat WTP Landers Shute WTP	Future (LinkWater - NPI)
	Caloundra	Landers Shute WTP Future Ewen Madock WTP	LinkWater (NPI)
	Caboolture	Caboolture WTP Bribie Island WTP Woodford WTP New Banksia Beach WTP (Bribie Island)	LinkWater (NPI) Conn to Redcliffe at Deception Bay Rd
	Petrie and Redcliffe	Petrie WTP North Pine WTP via bulk transport	Import from LinkWater (previously BCC) at Houghton Highway LinkWater Import from Caboolture at Deception Bay Rd
DB Central	Brisbane	Eastbank & Westbank (Mt Crosby) WTP Enoggera WTP North Pine WTP Forest Lake, Algester, Runcorn, Sunnybank and Chandler Aquifer Plants	LinkWater (NPI) LinkWater (SRWP) LinkWater (EPI) LinkWater (including assets and connection to Logan) Conn to Logan at Logan Rd LinkWater conn to Redcliffe at Houghton Highway
	Ipswich	Eastbank WTP and Westbank WTP via Linkwater	Export conn to Scenic Rim at Warrill View Linkwater (SRWP)
	Scenic Rim	-	via conn to Ipswich
DB South	Gold Coast	Molendinar WTP Mudgeeraba WTP Tugun Desalination (Manufactured Water)	LinkWater (including SRWP) Conn to Logan at Logan River
	Redland	North Stradbroke Island WTP Capalaba WTP	LinkWater including EPI
	Logan		Conn to Gold Coast at Logan River Conn to BCC at Logan Rd Conn to South Maclean from former Beaudesert LinkWater (including EPI and future SRWP)

The former trunk network of Brisbane City Council is at the core of the original bulk transport grid. It is supplied from a number of key water treatment plants. The recent northern pipeline interconnector (NPI) links supply sources and water treatment plants around Brisbane with those in Moreton Bay and the Sunshine Coast. A future extension of the NPI will link Noosa and the proposed Traveston Dam. The NPI was initially to operate to export from the supply sources north of Brisbane to supply

during the recent drought conditions, however is also proposed to support bidirectional flow. The existing water supply zones of Maroochy and Caloundra are supplied from treatment plants at Image Flat and Landers Shute with the option of a supply from the NPI.

The NPI also connects Caboolture which is supplied from treatment plants at Caboolture, Woodford and Bribie Island including the new Banksia Beach plant.

The Petrie and Redcliffe zone north of Brisbane and now part of Moreton Bay previously supplied three Council water supply zones (i.e. Caboolture, Pine Rivers and Redcliffe). The zone is supplied from the Petrie WTP and connections from Brisbane City Council former trunk network, now Linkwater around North Pine and at the Houghton Highway connecting Redcliffe.

Brisbane City Council is serviced by treatment plants at Eastbank and Westbank (Mt Crosby), Enoggera, North Pine and the aquifer plants at Forest Lake, Algester, Runcorn, Sunnybank and Chandler established as a drought emergency measure. Brisbane also has a connection to the Southern Regional Water Pipeline (SRWP) owned by Linkwater. The SRWP connects Eastbank and Westbank to water treatment plants and the desalination plant on the Gold Coast. The pipeline route is via Ipswich and Logan and has existing and proposed connections into these networks.

Brisbane is also connected to Logan via a minor connection at Logan Road. This connection is included in the market rules and is controlled by the WGM. The former Brisbane City Council bulk trunk network, now Linkwater also connects Brisbane to Logan. In turn the bulk transport (Linkwater) network through Logan also connects to the Eastern Pipeline Interconnector (EPI) that connects Redlands and the WTPs servicing Redlands at Capalaba and North Stradbroke Island to the grid.

Logan is located in between the Brisbane and Redlands and connects the two via trunk assets and the EPI part of Linkwater. There is also a connection between Logan and Gold Coast at the Logan River. This connection has historically been utilised to boost supply to Gold Coast and has recently been altered to provide a bidirectional capacity. The Logan water supply zone also has a connection to the former Beaudesert water supply zone of South Maclean that was incorporated into Logan City Council following the most recent Council amalgamations.

Gold Coast is serviced by water treatment plants at Mudgeeraba and Molendinar and the new desalination plant at Tugun. In addition, the distribution network has a connection to Logan at Logan River as described above. The bulk transport gird servicing Gold Coast also connects supply sources from Brisbane via the new Southern Regional Water Pipeline.

Ipswich is serviced by bulk transport via trunk mains from the Eastbank and Westbank WTPs at Mt Crosby and the new Southern Regional Pipeline. The Swanbank power station within Ipswich is also supplied with purified recycled water from the Western Corridor Water Supply Scheme part of Manufactured Water (MW). The Ipswich distribution network in turn supplies Scenic Rim at Warrill View (i.e. thus indirectly connecting this water supply zone, that is essentially an extension of the Ipswich water supply zone to the grid).

There are two different types of network in SEQ that are useful to understanding cost and pricing dimensions:

- Linked to bulk-transport assets – this comprises most of large water supply zones, and typically links to pipeline assets owned by LinkWater. There are 20 separate distribution supply zones connected to this infrastructure across SEQ ;
- Linked to remote sources – these networks tend to be small and attached to a single water source and treatment plant, typically owned by Seqwater. There are 18 of these remote networks in SEQ.

The following provides a brief description.

Systems linked to the bulk transport assets

Councils operate a number of water supply zones and pressure and leakage management areas within their own networks. There is significant interconnectivity within the council areas.

There were a number of connections between council boundaries before amalgamation (e.g. between Ipswich and Scenic Rim at Warrill View, between Gold Coast and Logan at the Logan River, between Logan and Beaudesert connecting South Maclean, between Redcliffe and Caboolture at Deception Bay and between Pine Rivers and Caboolture as part of the Boundary Rd Reservoir). However, the majority of these are now operated by the new bulk entities or have been superseded by the most recent council amalgamations. The few connections between the councils post amalgamation are metered and controlled under the market rules by the Water Grid Manager.

There is almost no direct interconnectedness between the new Distribution Businesses (except via bulk transport/LinkWater) and a single localised minor historical connection. One reason for this is that council boundaries were largely defined by rivers, which presented a natural geographic barrier to cross connection and any asset that accorded the ability to transport significant water between water service providers has been deemed a bulk transport asset.

There is only one connection between the proposed new Distribution Businesses where the assets are not owned by the bulk entities. This at the existing Logan Road connection between Brisbane City Council and Logan City Council. The connection is identified in the market rules and subject to the control of the Water Grid Manager. However, the physical infrastructure either side of the boundary is owned by each of the respective entities and not bulk transport. There are also a couple of examples where the existing physical infrastructure of the proposed new distribution business is located in relative close proximity to each other (i.e. effectively on opposite sides of the road) and not separated by a natural geographic feature such as a river for example:

- between Brisbane and Moreton Bay around Everton Park and Bridgeman Downs; and
- Between Brisbane and Logan around Forestdale / Browns Plains and Rochedale.

Table 12. Estimated number of supply zones, connected bulk transport assets (eg LinkWater)

Distribution Business	Council	Number of Supply Zones
DB North	Sunshine Coast	4
	Moreton	4
TOTAL		**8**
DB Central	Brisbane	3
	Ipswich	1
	Scenic Rim	1
	Somerset	1
	Lockyer Valley	0
TOTAL		**6**
DB South	Gold Coast	3
	Redland	1
	Logan	2
TOTAL		**6**
SEQ TOTAL		**20**

Source: Cardno

There is almost no interconnectedness between councils (and therefore between Distribution Businesses), apart from some historic anomalies. One reason is that council boundaries were largely defined by rivers, which presented a barrier to cross connection. A notable exception is between Brisbane and Moreton Bay around Everton Park and Bridgeman Downs, where the network for each council effectively ends at different sides of the road that forms the boundary.

Linked to remote sources

There are 18 networks that are relatively isolated and operate remote from the bulk transport network. These are supplied from remote sources and treatment plants, which still form part of the SEQ Water Grid. These are set out in the table below.

Table 13. Remote-source supply zones

	Pre-amalgamation council area	Remote-source water supply zone (by treatment plant)
DB North	Noosa	Noosa Until completion of the NPI
	Maroochy	Kenilworth
	Caloundra	-
	Pine Rivers	Dayboro
	Caboolture	Maleny
	Redcliffe	-
TOTAL		**3**
DB Central	Brisbane	-
	Boonah	Boonah-Kalibah
	Beaudesert	Helen St Canungra Kooralbyn Rathdowney
	Esk	Esk Linville Somerset Dam (Esk) Lowood(1)
	Kilcoy	Jimna Kilcoy & Somerset Dam (Kilcoy)
	Ipswich	-
	Laidley	Lowood(1)
	Gatton	Lowood(1)
TOTAL		**11**
DB South	Gold Coast	-
	Redland	Amity Point Dunwich Point Lookout
	Logan	-
TOTAL		**3**

Source: Cardno. Note (1): Lowood WTP part of the former Esk Gatton Laidley (EGL) Water Board serviced three former Councils. Therefore, is considered to have serviced three former discrete water supply zones.

4.1.2 Cost drivers

The table below provides a summary of the key cost drivers for the water distribution system.

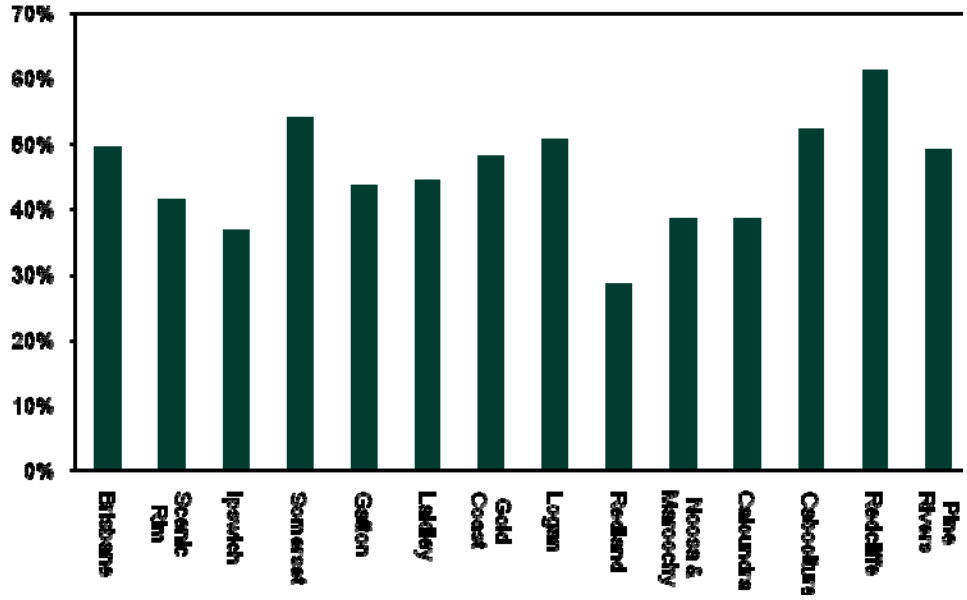
Table14. Summary of key cost drivers – water supply

Driver	Relevant factors	Comment
Volume sold	Purchase of bulk water from the water grid	Current bulk water charges are on a long-term price path, with different pricing applying to previous council areas.
	Pumping costs	Most reticulation systems contain and use storages. Pump costs mostly relate to the periodic filling of those storages and servicing of elevated distribution areas.
Distribution losses	Reduced loss will save on water purchase costs from the grid, and other operating costs.	There are statutory requirements for most councils to prepare System Leakage Management Plans under the *Water Supply (Safety and Reliability) Act.*
Density of connections	Length of the reticulation network, and the number of connections.	Relates to the cost per connection.
Capacity of network	Service commitments re flow rates. Requirements in relation to water for fire fighting.	Relates primarily to capital costs, rather than operating costs. Capacity constraints are also a function of growth.
Topography	Service commitments re pressure and flow rate. Pumping costs	Pumping costs increase depending on transportation volume and lift required.
Asset condition and age	Extent of repairs and maintenance. Capital expenditure on renewals and replacement.	Major renewals costs for key individual assets can be infrequent but typically involve significant cost..
Number of customers	Customer service and billing function.	There are substantial economies of scale in back-office functions such as billing, accounts receivable, customer enquiries, complaints handling etc. This is not a cost specific to individual networks, but rather the customer base as a whole.

Expansion of the urban footprint will also drive costs in terms of augmentation of the network. Weather conditions can also affect costs. For example, drought can lead to dry soil conditions which increase the incidence of main breaks. Changes in input costs (Eg labour, electricity, chemicals) are also relevant.

Bulk water purchases would appear to comprise a significant proportion of water supply costs. This can be inferred from the structure of council water charges, where bulk water charges comprise up to 60% of the total household bill.

Figure 18. Bulk water prices as a percentage of household bill (250kL user)



Note: 250kL is equivalent to a three person household, using 230l/person/day. This per capita use has been adopted by the QWC for long term planning in its draft SEQ Water Strategy.

This proportion will increase over time as the bulk water price paths are implemented, assuming that council's other costs remain static.

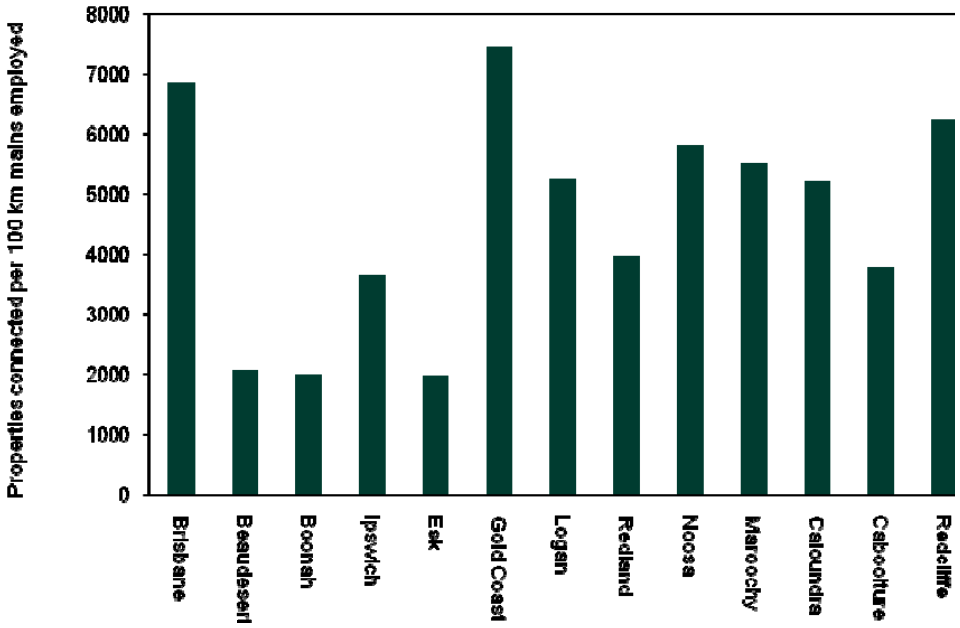
It is also important to note that while these bulk water prices vary between pre-amalgamation council areas, they do not differentiate within those areas. This means, remote source supply zones will pay the same bulk water charge as those connected to the bulk transport infrastructure in the same council area.

Another significant change is to the underlying cost structure. While we do not have precise data, we would expect that the businesses have gone from a predominantly fixed cost business (having owned the upstream supply assets), to a predominantly variable cost business (now paying consumption-based bulk water charges).

In order to provide an indication of the variation in operating costs for reticulation networks across SEQ, Cardno has performed a very high-level analysis using a multi-criteria analysis taking into account reservoir bottom water levels (where available), topography/pumping requirements based on an assumed constant friction loss of 5m/1000m and maintaining a minimum pressure of 25m (refer Attachment 6). This shows that there is likely to be some potential significant variation in costs between the 20 service areas identified above, and this variation is likely to also occur within each Distribution Business' area of operations. The analysis does not consider network capacity issues which would require hydraulic modeling.

It is also worthy to note the variation in density across different supply zones when considering the likely cost differences between areas. Those areas with less density may face higher unit costs of supply (figure 19 below refers).

Figure 19 Properties connected per 100 km of mains employed



Data source: QLD Government, Queensland local government comparative information 2006/07

4.1.3 Marginal cost of expansion

The determinants of the incremental cost of expanding the network will largely depend upon site-specific factors. For example, the cost of the local reticulation assets constructed by a developer is unlikely to be materially different to the average cost of similar assets in the existing network under greenfield conditions. Upstream augmentation of trunk infrastructure may involve significantly greater costs, particularly where this involves duplication of existing mains located across densely populated areas.

Other key factors include geological conditions (eg rock), incidence of crossing other infrastructure, creeks etc, proximity to the bulk source assets (eg distance), and topography.

This range is, in part, evidenced by the range of infrastructure charges which provide some indication of marginal cost although we understand the precise approach to setting these charges may differ between councils[52]. These charge range from less than $3000 per tenement to over $10,000 per tenement. This can be compared to the NPV of water charges to an existing household using 250kL per annum. Based on current 2009/10 prices for distribution services, this ranges from around $3,200 per household to $5,300 per household. While these two costs are not directly comparable, it does give an indication of the comparative costs.

It is important to note, however, that the value of the existing distribution assets is based on a discounted cash flow valuation, which may distort the relationship between current average costs (and prices) and marginal cost of expansion and augmentation.

4.1.4 Tariff structures

The costs of water supply are recovered through user tariffs. Costs associated with expanding the network to service new development are recovered via infrastructure charges.

Attachment 3 provides an overview of the current prices. The sections below refer to the key issues and highlight relevant comparisons.

User tariffs

All councils have adopted a two-part tariff, with seven of the 10 councils adopting an inclining block tariff for their consumption charges. Access charges are mostly set on a per property (connection) basis, although some councils differentiate charges based on the size of connection (or meter) for residential users. Most councils have adopted postage stamp pricing across their service areas. Table 15 below provides a summary.

[52] Indeed, the draft guidelines published by the Department of Infrastructure and Planning suggest that infrastructure charges should reflect a measure of average cost after augmentation.

Table15. Summary of tariff structure – residential charges

Distribution business	Council area	Basis of access charge	Nature of consumption charge	Number of residential tariffs	Total number of supply zones
DB Central	Brisbane	Per connection [a]	Inclining block (3 tiers)	1	3
	Scenic Rim	Per connection [a]	Single charge	1	6
	Ipswich	Per connection [a]	Inclining block (3 tiers)	1	1
	Somerset	Per connection,	Inclining block (2 tiers)	1	7
	Lockyer Valley	Per connection	Inclining block (2 tiers)	3	1
TOTAL				**7**	**18**
DB South	Gold Coast	Per connection	Single charge	1	3
	Logan	Size of connection	Single charge	3	2
	Redland	Size of connection	Inclining block (3 tiers)	1	4
TOTAL				**5**	**9**
DB North	Sunshine Coast	Per connection [a]	Inclining block (2 tiers)	1	5
	Moreton Bay	Per connection	Inclining block (3 tiers)	3	6
TOTAL				**4**	**11**

a assumed to be charged per premise. No specific information found in council's charges schedule.

Notes:

Lockyer Valley Regional Council, Logan City Council and Moreton Bay Regional Council charge different access charges for different areas, which largely relate to pre-amalgamation boundaries. However, the same consumption charges apply.

In many cases, access charges also apply to vacant land or unconnected property.

Source: QCA information and publicly available Council information.

Recycled water also attracts a postage stamp price in Moreton Bay, where the same price applies for reticulated recycled water across different systems in the previous Pine Rivers and Caboolture shire areas.

Infrastructure charges

Each council levies infrastructure charges in relation to new developments. In contrast to ongoing user prices, infrastructure charges are set for defined geographic zones and as such each council has a multitude of different rates, which we presume reflect the different augmentation costs for trunk infrastructure. Indeed, we understand that infrastructure charges are required to be cost-reflective under the Integrated Planning

Act[53] although the Department of Infrastructure and Planning (DIP) has issued a draft guideline that suggests limiting the number of charges.[54] This draft guideline also sets out how infrastructure charges should be calculated (refer below).

Box 4 Infrastructure charge calculation – DIP Guideline

The Integrated Planning Act (IPA) enables a local government to levy a charge for supplying trunk infrastructure. The Department of Infrastructure and Planning has released guidelines for local governments in setting infrastructure charges schedules. The guideline, which is still a working draft, sets principles including:

- Charges are formulated according to reasonable performance requirements (desired standard of service) for infrastructure. The design and construction standards must minimise the whole-of-life costs of supplying the infrastructure; and
- Infrastructure costs must be apportioned equitably among all infrastructure users

The draft guideline also requires that relevant demand units are established (eg equivalent tenement or equivalent person), and that these units are applied to different uses and user types.

Charge calculation and cost apportionment

The draft guideline sets out the following steps to determine an infrastructure charge:

- Establish the existing demand and estimate the future demand for each charge area over time up to the ultimate development for the lots and user groups;
- Identify and value existing and future trunk infrastructure items that will provide the desired standards of service, including all other establishment costs allowed under IPA;
- Identify whether infrastructure and related costs are directly attributable (used by one charge area or one user group) or common (used by more than one charge area or user group):
  - Allocate directly attributable costs to corresponding catchments and/or user group;
  - Allocate common costs to charge areas and/or user groups based on their share of common demand;
  - Calculate the infrastructure charge rates for each charge area using the following methodology:

$$\frac{\text{Establishment cost of existing infrastructure + NPV of future infrastructure}}{\text{Existing demand + NPV of future demand}}$$

- The value to be adopted as 'Existing cost of infrastructure' would appear to be current replacement cost.
- Future investment should exclude the cost of rehabilitation, maintenance or replacement of existing assets.
- The draft guideline also references an acceptable range for a discount rate for calculating the NPV, which is set as a premium to the 10 year bond rate..
- In relation to double dipping, the draft guideline states:

... where the cost of infrastructure is being recovered through recurrent revenue such as local government rates, infrastructure charges must not be levied to recover the cost of that same infrastructure.

Department of Infrastructure and Planning. *IPA Infrastructure Guideline 2/08 – Infrastructure charges* schedule. Working draft, December (2008).

[53] Refer to Queensland Water Commission. *Impact of Water Reform on Land Use Planning and Development Assessment in South East Queensland. Discussion Paper,* (2008) p26.

[54] Department of Infrastructure and Planning. IPA Infrastructure Guideline 2/08 – Infrastructure charges schedule. Working draft, December (2008). p18

The approach set out in the draft guideline (refer the Box above) suggests infrastructure charges should reflect the new average cost of a discrete service area, after future augmentation and incorporating demand growth (in NPV terms).

These charges vary within council areas and between councils. These charges are levied on developers, rather than water users, to recover the costs associated with 'trunk' infrastructure identified in a PIP and Infrastructure Charges Schedule (ICS). Trunk infrastructure relates to common infrastructure upstream of the development.

There are a number of notable distinctions between infrastructure charges and user tariffs in SEQ:

- infrastructure charges are tupically set on a catchment of service area basis, whereas user tariffs are set across entire council boundaries encompassing a number of different service areas;
- infrastructure charges are payable by developers, whereas user tariffs are paid by users;[55]
- infrastructure charges relate to capital costs, whereas user tariffs relate to capital and operating costs; and
- infrastructure charges are set based on the replacement cost of the existing network, yet user tarffs are likely to be set using a different asset valuation.[56]

It is therefore difficult to reconcile any relationship between the two sets of charges and form an integrated view about the level of cost recovery (and excessive returns). Nonetheless, this will need to occur into the future if these charges are to continue.

Other service charges

All councils set service charges for connections, disconnections, meter testing etc. These are set either as a flat rate, hourly rate, or by quote.

4.1.5 Differential prices

Although most councils adopt postage stamp pricing, there are a range of prices for different users or products. These price differences do not seem to be driven by cost or service factors. Rather, different prices are charged based on the type of user and in some cases, concessional charges apply.

[55] Although it is arguable that infrastructure charges are incorporated into the value of the users land.

[56] For example, DORC or another value set by the Minister.

Differential charges for commercial and industrial users

Differential charges could be expected for commercial and industrial users where they required a higher level of service. This is most likely to occur for flow rate (or meter size) for larger consumers or businesses with high peak demands. Hence we would expect that tariffs would be structured to reflect this service differential, with price differentials based on the service attribute (eg flow rate/meter size), rather than the type of user.

However, many councils set different prices for residential and non-residential users for what appears to be an equivalent service.

For example, Redland's access charges, which are based on meter size, are around 30% higher for non-residential than residential users, for the equivalent meter size.[57] Also, Redland does not offer non-residential customers an inclining block tariff (as occurs for residential users), but rather charges the top tier consumption charge for all non-residential water taken.

Ipswich sets the same consumption charge of $1.91 per kL for the first 80 kL/quarter for residential and non-residential customers. It then charges residential customers $2.36 per kL for the next 40 kL (80 to 120 kL) and $2.69 per kL for any consumption above 120 kL. Non-residential customers consuming above 80 kL a quarter are charged straight away with the higher rate of $2.68 per kL.

Brisbane's consumption charges are $0.06/kL to $0.12/kL higher for business than residences.

Somerset appears to have some charges based on land use and valuation of properties. This applies to water and sewerage charges for farming and commercial/industrial as well as residential places in Esk and Kilcoy.

Concessional charges

Redland waives the access fee for water supply to organisations such as churches and sporting clubs.

No other concessional arrangements were found, although it is possible that other councils do provide concessional water charges for some uses.

[57] For example, the access charge for a 20mm meter offtake is $233 for residential users, but $304 for non-residential. The access fee for a larger 150mm meter offtake is also more expensive for a non-residential user, at $17,074 compared to $13,134 for residential users. It should also be noted that Redland' consumption charges are also higher to non-residential than residential users.

Differential prices for standpipe water

Some councils offer a drinking water supply direct from standpipes[58], to water trucks. For example, Scenic Rim charges $3.50/kL for water taken at a standpipe, compared to a consumption charge of $2.29/kL for water delivered to customer offtakes. An equivalent average cost of $3.50/kL relates to a residential user taking 283kL per annum, after including the annual access fee of $343. It is likely that a standpipe would supply more than this volume annually, although would probably involve a larger diameter connection/meter, and hence greater flow rate and share of network capacity.

While this is likely to be a minor issue in terms of total water deliveries, price differentials for standpipe water may become important where there is rivalry between providers for this service – particularly for standpipes that exist, or could be developed, along the service borders.

Ipswich also charges a higher price for water from standpipes to commercial carriers ($2.35/kL) than for residential users ($1.95/kL, which approximates the consumption charge to residential premises of $1.91/kL).

4.1.6 Pensioner subsidy scheme

The Queensland Government provides a rebate to pensioners taking water in SEQ water grid. This rebate is $70 for 2009/10, increasing to $100 in the following year.

4.2 Wastewater

There are many discrete wastewater systems[59] within most council areas, and each is likely to face different costs. Similar to water supplies, most councils adopt a single postage stamp price within council boundaries and most councils differentiate sewerage prices based on user type.

Most councils also adopt a single tariff for trade waste. Many councils do, however, differentiate prices based on the nature of the trade waste. Councils also set infrastructure charges for wastewater and sewerage.

This section examines these and other wastewater pricing issues in more detail.

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[58] Standpipes are connections to the distribution network that can be used to fill water trucks. A standpipe user typically requires some form of access to the connection itself. Some councils use card-access systems that also measure the volume of water taken.

[59] A wastewater system is defined as comprising a sewer network and a wastewater treatment plant. Hence it comprises both the sewer service and wastewater service.

4.2.1 Service areas and network configuration

There are 64 discrete wastewater systems, comprising a sewer network feeding a wastewater treatment plant. There is no interconnection between these systems operating to share load on a daily basis. Where interconnections have occurred, they mostly reflect a permanent or semi-permanent change to the catchment for each wastewater treatment plant, to shift load from a plant approaching full capacity, to a neighboring plant that has spare capacity.

There is no interconnection between wastewater systems across council boundaries for load sharing.

There may be a few instances where industrial users located in one council have negotiated access to the wastewater network in a neighboring council area.

4.2.2 Cost drivers

The costs of each wastewater system will vary, depending on a range of factors. These are summarised in the table below.

Table 16. Summary of key cost drivers – wastewater

Driver	Relevant factors	Comment
Environmental discharge authorisation (volume and quality)	The treatment and hydraulic capacity of the plant.	We understand that discharge authorisations are typically only reviewed upon plant upgrades, with new authorisations becoming more onerous.
Topography	Pumping costs.	Sewerage is heavier than water to transport. It is common practice to maximise the gravity network to avoid pumping, where possible and cost effective to do so.
Wastewater composition	Treatment capacity of treatment plant. Chemical and electricity costs of treatment. Potential cost implications on sewer network from some contaminants.	This is affected by the extent and nature of trade wastes accepted, and the proportion of domestic sewerage and lower-strength wastes with higher strength trade waste. The nature of individual sewer catchments is therefore also a factor – eg catchments with a higher proportion of heavy industry are likely to produce wastewater that is more costly to treat.
Volume of wastewater discharged	Pumping costs.	Volumes are linked to water use to some extent. Will be affected by growth or intensification of use. Water restrictions have been shown to significantly reduce volumes discharged to sewer.
Rate of discharge to sewer network.	Capacity of the sewer network. Hydraulic capacity of the treatment plant.	There is limited storage capacity in the sewer network and at the treatment plant. Provision for wet weather flow events is also a factor, including allowances to bypass the treatment plant for high-flow events.
Density of connections	Length of the sewer network, and the number of connections.	Relates to the cost per connection eg travel and associated costs for maintenance.
Size of	There are economies of scale for	Economies of scale can arise from, for example,

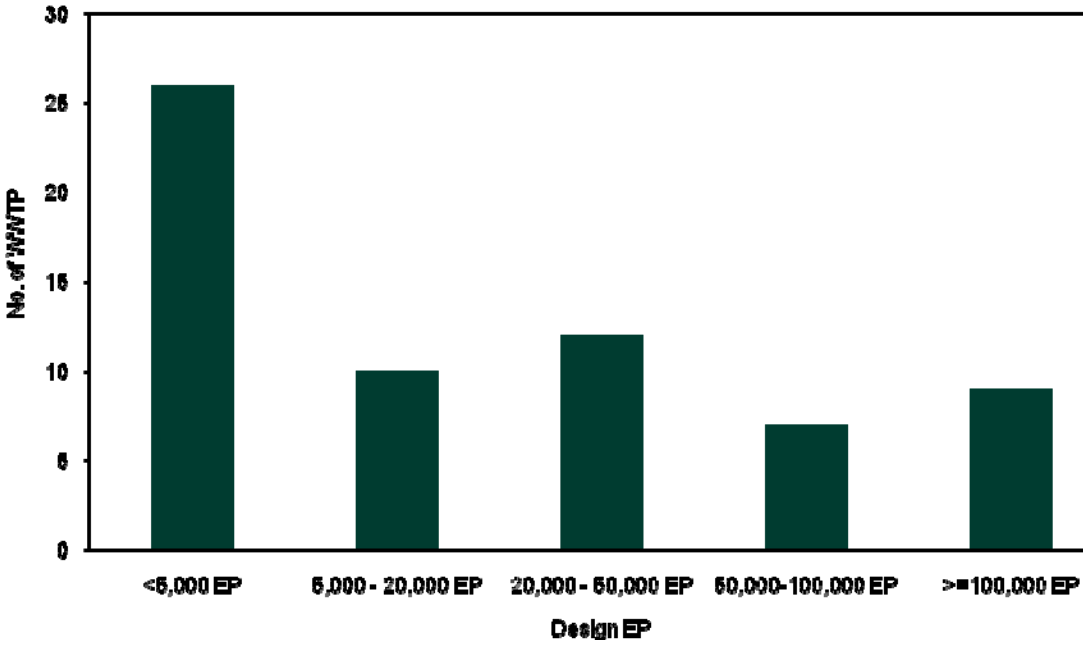
Driver	Relevant factors	Comment
wastewater treatment plant	wastewater treatment plants.	larger plants being able to use more efficient treatment processes, and lower unit costs for labour and other plant overheads.
Asset condition	Extent of repairs and maintenance. Capital expenditure on renewals and replacement.	Major renewals costs for key individual infrastructure items can be infrequent but involve significant cost.
Number of customers	Customer service and billing function.	There are substantial economies of scale in back-office functions such as billing, accounts receivable, customer enquiries, complaints handling etc. This is not a cost specific to individual wastewater systems, but rather the customer base as a whole.

The incidence of wet weather events can also affect costs, as infiltration into the sewer network during wet weather increases load and treatment costs.

To minimise the operating costs (eg pumping) wastewater systems are designed to maximise the extent of gravity sewer network. Therefore, the design of a wastewater system involves a trade off between pumping and the location and size of treatment plant. For example, while there are economies of scale in the size of wastewater treatment plant, these might be offset by increased pumping costs from transporting waste through a larger network or servicing low-lying areas on the fringe.

Information is not available in relation to all of the above cost factors to provide an accurate assessment of the cost differences at each wastewater system. However, information on the capacity of each plant and the treatment process has been assembled, and indicates that material differences are likely to exist between individual wastewater systems, including those within council boundaries. Attachment 4 provides a summary of capacity and process by individual plant to illustrate this point. For example, processes range from Biological Nutrient Reduction (BNR), conventional activated sludge, extended aeration, tank/lagoons and package plants. Capacity ranges from 900,000 EP (equivalent persons) down to 100 EP. Figure 20 below shows the range of plant capacity across SEQ.

Figure 20 SEQ wastewater treatment plants by capacity



Source: Cardno

The composition of trade waste in each wastewater system is different. For example, within DB Central, it is expected there will be more trade waste from heavy industry in Brisbane and Ipswich compared to other systems. While we have not been able to source the discharge license conditions at each wastewater treatment plant, there will be differences based on concentrations, mass loads, time and the environment to which they discharge.

In some cases, costs may be also be driven by recycled water requirements. For example, drinking water quality management plans for recycled water may have cost implications for how Brisbane City and Ipswich City manage their wastewater systems to provide water of a suitable quality to the Western Corridor Recycled Water Project.[60]

To further illustrate the likely cost differences across individual networks, a high level assessment of the optimal catchment for the existing WWTP has been performed based on topography, distance and geology. This is provided in Attachment 6.

[60] Drinking Water Quality Management Plans are a requirement under the Grid Market Rules and the *Water Supply (Safety and Reliability) Act*.

4.2.3 Growth and the cost of expansion

As for water supply, the cost associated with servicing new areas is currently met through infrastructures charges.

As set out above, the design of a wastewater system involves a trade off between network and treatment costs. For example, while there are economies of scale in the size of wastewater treatment plant, these might be offset by increased pumping costs from drawing waste from a larger network or servicing low-lying areas on the fringe. This process of optimisation will give different cost outcomes in different sewer catchments.

As such, the cost of servicing new areas will be situation specific. Many of the construction-related factors for water supply assets will also apply for the sewer network.

However, the cost of providing additional treatment plant capacity is likely to be higher than for existing infrastructure, given increasing standards for discharge. While this will be situation specific depending on, for example, the composition of the wastewater and the environmental condition of the receiving waters, by and large it could be expected that new treatment capacity will be at a higher cost than the average cost of treatment.

A similar analysis for water supply has been conducted for wastewater assets, referencing infrastructure charges and existing sewerage charges. These infrastructure charges typically range from between $3,000 to $5,000 per tenement. This compares to the NPV of sewerage charges for residential users of between $4,300 to $6,200 per household.[61]

The potential distortion in comparing new and existing capacity arising from asset valuations also applies for wastewater assets.

4.2.4 Tariff structures

Postage stamp pricing has been broadly applied for both sewerage and trade waste charges. While most councils typically have one suite of charges across the council area, there are separate tariffs for individual products or waste types. Infrastructure charges also apply in relation to new development.

[61] Based on a range of sewerage costs between $400 and $580 per property, over 30 years, discounted at 8.5%.

Sewerage charges

Table 17 below compares the number of discrete wastewater systems with the number of different prices by area.

Table 17 Summary of residential sewerage tariffs

Distribution business	Council area	Tariff structure	Number of tariffs	Number of wastewater systems
DB Central	Brisbane City Council	Per property	1	9
	Scenic Rim Regional Council	Per property [a]	n/a	8
	Ipswich City Council	Per property [a]	n/a	4
	Somerset Regional Council	Per property	4 [b]	6
	Lockyer Valley Regional Council	Per property	1 [c]	4
DB South	Gold Coast City Council	Per property	1	4
	Logan City Council	Per property [b]	1	1
	Redland City Council	Refer note 1.	1	7
DB North	Sunshine Coast Regional Council	Per property [d]	n/a	13
	Moreton Bay Regional Council	Per property	3 [e]	8

a Information obtained from WSAA (2009), Annual performance report 2007/08

b Somerset Regional Council charges either per pedestal on premise or per vacant allotment. These charges differ between Lowood, Fernvale, Esk, Toogoolawah and the district of Kilcoy.

c Although not entirely clear from published information, it appears that a single sewerage charge applies across the council.

d Information obtained from Queensland Treasury (2003), Seventh annual report to the National Competition Council. Attachment 6.

e Different charges apply for Caboolture, Pine Rivers and Redcliffe based on pre-amalgamation areas.

n/a – not available from search of publicly available information

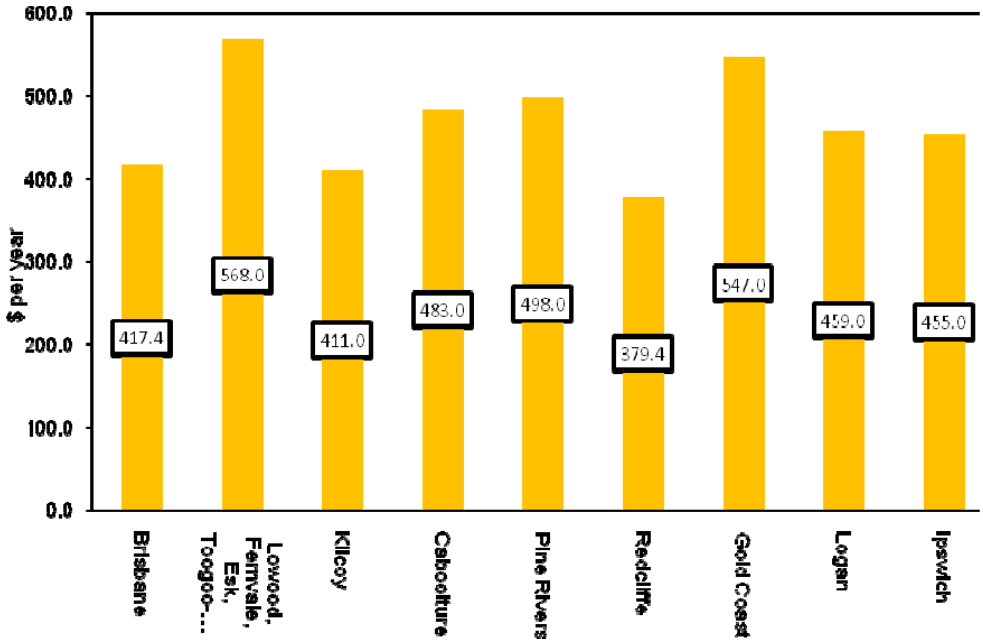
Notes.

1. Charges in Redland refer to 'sewer units'. This would appear to have the effect of charging residential customers on a per property basis, and commercial users on a per pedestal basis, however this is not clear from the published information.

Source: Publicly available Council information, WSAA (2009) National Performance Report 2007/08 and QLD Treasury (2003).

It appears all councils set residential charges on a per property basis. Figure 21 below provides a comparison from councils with available information for 2009/10.

Figure 21 Sample residential sewerage per property charges, annual cost (2009/10)



Note: Lowood, Fernvale, Esk, Toogoolawah and Kilcoy are all districts within the Somerset Regional Council. Caboolture and Pine Rivers are part of the Moreton Bay Regional Council. Somerset's charges are "per single residence, flat, one pedestal premise". It appears that residential homes are regarded as single pedestal premises and residential charges are therefore classified as "charged per property". In Ipswich sewerage charges are described as pedestal based (single for residential). It is assumed that this means that residential properties are always treated as one-pedestal properties.

Data source: Synergies graph based on Council data and WSAA data for Ipswich.

For multi-residential dwellings and non-residential uses, some councils set tariffs on a per pedestal basis.

In some cases, inclining block tariffs apply for non-residential users. For example, Brisbane City's charges, per pedestal, increase with more pedestals per property (eg going from $367/pedestal for 2-8 pedestals, to $141.91/pedestal for over 12 pedestals).

Trade waste charges

Some trade wastes will impose significant costs upon the water treatment process, compared to sewerage. Some, but not all, councils have set separate trade waste charges in recognition of this. Table 18 below provides a summary.

Table 18 Summary of trade waste tariff structure

Distribution business	Council area	Tariff structure	Number of tariffs	Number of wastewater systems
DB Central	Brisbane City Council	Small users pay flat quarterly fee. Larger uses with waste less than domestic strength are charged single rate per kL discharged. Large industrial users are charged by volume (kL) and contaminant load (kg).	1	9
	Scenic Rim Regional Council	n/a	n/a	8
	Ipswich City Council	Different charges apply by category of user. Charges are also set for some users based on a contaminant load.	1	4
	Somerset Regional Council	n/a	n/a	6
	Lockyer Valley Regional Council	n/a	n/a	4
DB South	Gold Coast City Council	Incorporated into sewerage charges. An additional, volumetric charge of $3.37/kL also applies (less a half-yearly discharge allowance).	n/a	4
	Logan City Council	Annual base charges based on low, medium or high strength trade wastes Conveyance and treatment charges based on three categories including flat fee for category one and volumetric charges per kL or kg for category 2 and 3 trade wastes	1	1
	Redland City Council	Fees charged per kL discharged, with different charges for grease waste and chemical toilets. Otherwise, the service is limited to domestic strength sewage, charged per kL.	1	7
DB North	Sunshine Coast Regional Council	Charged by volume (kL) and contaminant load (kg).	3 (by old council area)	13
	Moreton Bay Regional Council	Charged by volume (kL) and contaminant load (kg).	3 (by old council area)	8

n/a – not available from search of publicly available information

Source: Publicly available Council information. For some councils, no information was available.

The above table illustrates the variation in approaches between councils, including charging a flat fee by user / business type, setting a volumetric charge and a combined volumetric and contaminant load tariff structure.

The most comparable charges relate to contaminant load. Table 19 below provides a summary of these charges.

Table 19 Comparative trade waste charges – by contaminant load

			Moreton Bay Regional Council			
	Brisbane	**Sunshine Coast**	**Logan**	**Caboolture**	**Pine Rivers**	**Ipswich**
BOD (per kg) [a]	$0.74	-	$0.96	$1.85	$1.65	-
TOC (per kg) [a]	$0.74	-	-	-	-	-
Suspended solids (per kg)	$0.69	$1.00	$1.43	-	$1.35	$1.16
Total (Kjeldahl) nitrogen (per kg)	$1.70	$1.60	-	$2.10	$1.15	$2.12
Total phosphorous (per kg)	$1.35	$4.10	-	$6.90	$0.90	$6.50
COD (per kg) [a]	-	$0.60	$0.51	$0.55	$1.45	$0.98
Total oil and grease (per kg)	-	$1.00	$0.72	-	$0.90 [b]	-

a BOD – biological oxygen demand, TOC – total organic carbon, COD – chemical oxygen demand **b** not charged per kg but per kL

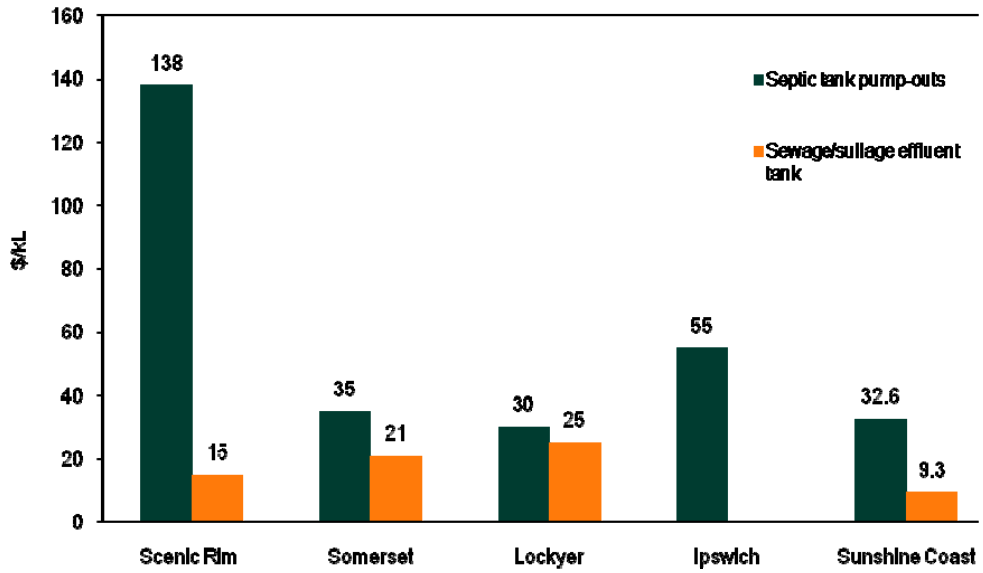
Source: Synergies comparison based on council's publicly available information.

All councils apply postage stamp pricing to some extent for trade waste charges, either across the post or pre-amalgamation council area.

Waste delivered to the wastewater treatment plant

Some councils accept certain wastes at the wastewater treatment plant. Figure 22 below provides a comparison of the charges for septic waste.

Figure 22 Sewerage charges (sewerage delivered to treatment plants)



Note: The services illustrated by the orange columns have different descriptions. For Scenic Rim it is "holding tank effluent" charges, for Somerset it is "discharge of sewage holding tank" charges, for Lockyer Valley it is "sullage effluent" charges and for Sunshine Coast it is "tankered non-domestic wastewater" charges. It is assumed that these services are comparable. In addition to the per kL charge for septic waste, the Ipswich City Council charges a base charge of $60.00.

Data source: Synergies graph based on Council data

In other cases, councils accept trade waste at the treatment plant. For example, Somerset Regional Council charges $35/kL for grease trap wastes, which is the same price as for septic tank waste.

Infrastructure charges

Councils levy infrastructure charges in relation to sewerage services, in the same way as for water supply (refer above).

Other service charges

Councils also have a wide range of service charges, including for connection and disconnection, inspections, preparation of drawings etc. These are typically charged at an hourly rate, although some set fixed charges such as for connections and disconnections.

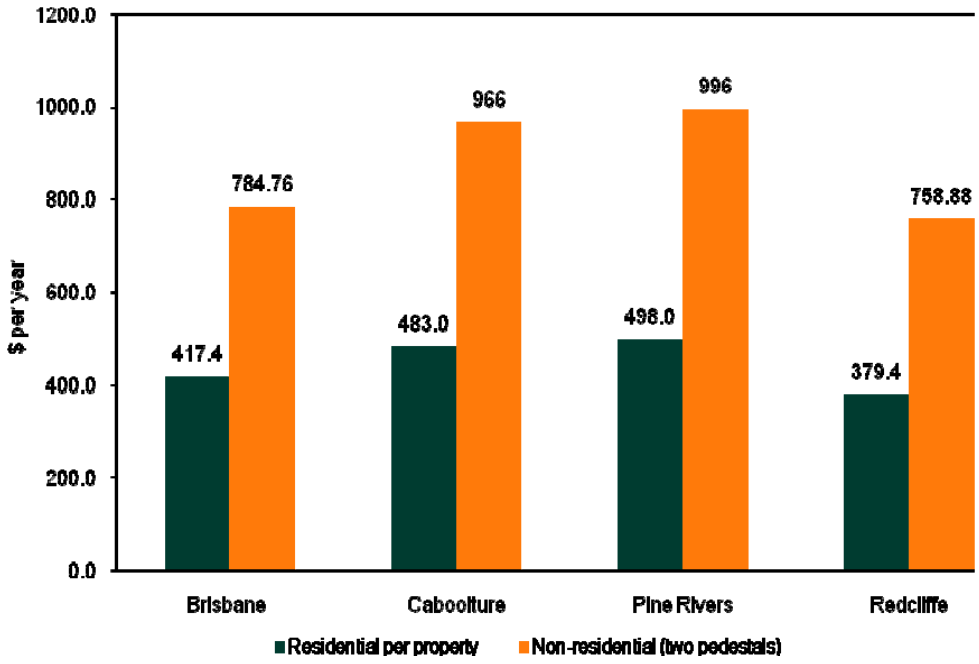
4.2.5 Differential sewerage charges for commercial and industrial users

The majority of councils distinguish sewerage charges between residential and non-residential users, and for the accommodation sector in particular.

For example, Brisbane City Council charges one rate for multi-residential land, hotels and motels, and a higher charge for 'other' uses. We have interpreted 'other' to include, for example, universities, restaurants, factories, offices etc.

Many councils also charge non-residential users on a per pedestal basis, compared to a per property basis for residential. In broad terms, it appears that the residential charge (per property) is equivalent to the charge for a non-residential property with a single pedestal. Costs for non-residential users increase significantly with additional pedestals (refer below).

Figure 23. Sewerage charges - residential V non-residential property (2 pedestals)



Data source: Synergies comparison based on publicly available council information.

Ideally, we would expect that sewerage charges would relate to the capacity consumed in the wastewater system, and the volume and quality of sewerage discharged. There is no doubt a relationship between number of pedestals and capacity, at least for non-residential users, and to a lesser extent between number of pedestals and volume (eg a household with two or more pedestals may still only have one or two occupants). The quality aspect of the sewerage can be controlled through regulatory means, for example the types of connections to the sewer network (eg toilet, kitchen, showers etc).

There may be practical and cost constraints around measurement of sewerage discharge for residential and other users which prohibit a more precise charging structure, particularly for the residential sector.

However, the differential between residential, hotel/motel, and 'other' users may warrant further attention for the future.

4.2.6 Concessional charges

Some councils provide concessional sewerage charges to selected organisations. For example:

- Brisbane City Council offers concessional pedestal charges for retirement villages, child care centres, convalescent homes, schools, kindergartens, community protection centres, churches, welfare homes, as well as not-for-profit sporting and community organisations; and
- in the Caboolture district within the Moreton Bay Regional Council council-connected properties, caravan parks and relocatable home parks are charged concessional fees.

These discounts are substantial – for example Brisbane City Council's discount to the users identified above is 50% of the rate for multi-residential land, hotels and motels.

This concession might be explained by the frequency of use – for example, a sporting club might only operate for a limited time during the week – however this is not the case for many of the uses (eg retirement villages). As such, these concessions may be driven by a desire to subsidise a section of the community rather than based on cost factors.

4.3 Charges for unconnected properties

Most councils set charges for water and sewerage services to vacant land, not connected to either network. For example:

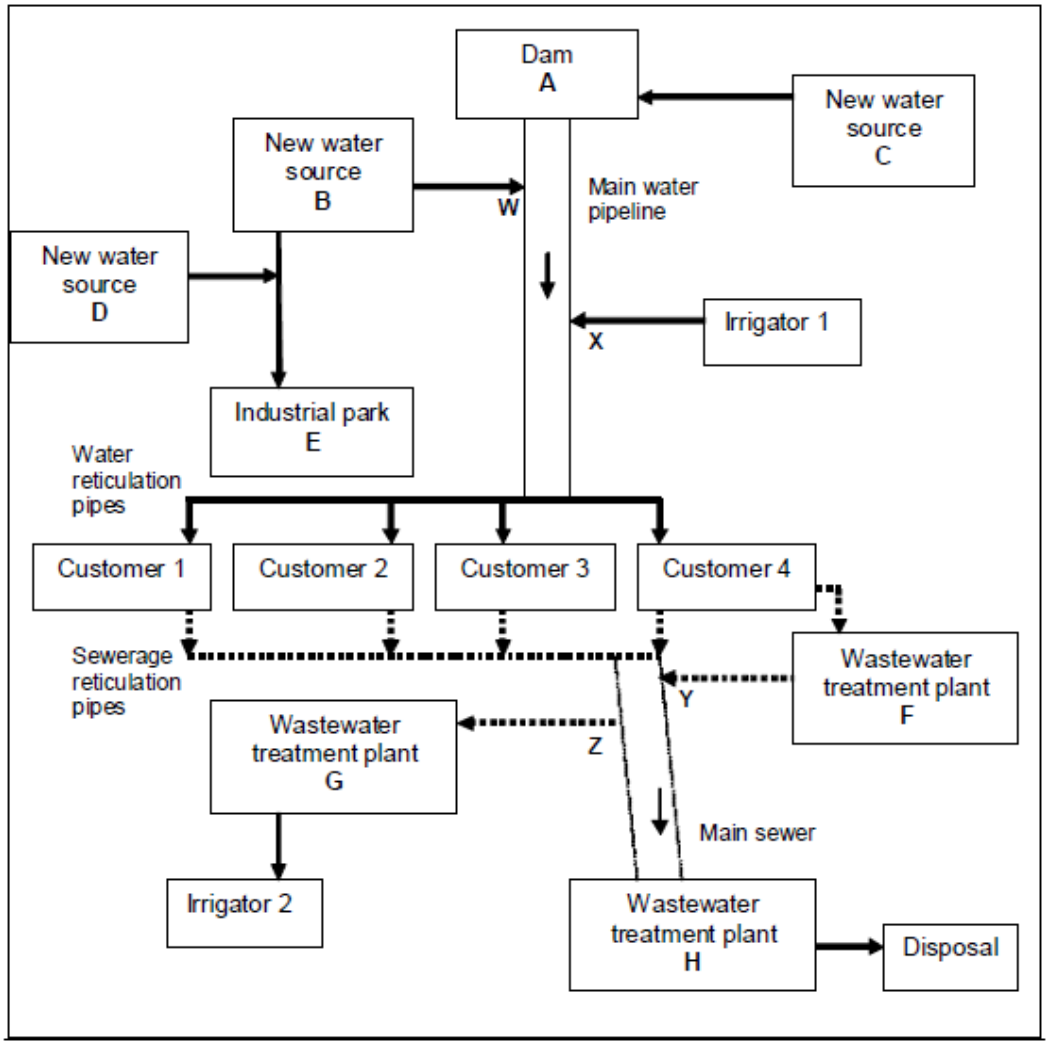
- Redland charges for vacant commercial and industrial sewered properties;
- Logan charges a base water service charge for non-connected vacant land; and
- Moreton Bay charges, in the previous Redcliffe Council area, for each parcel of vacant or occupied land which is not connected to the Council's water supply system, but is in the Council's service area.

These charges are typically at a slight discount to connected properties.

5 Rivalry and barriers to entry

The market power of the distribution business will be determined by the existence and extent of actual or potential competition in the markets for water supply and wastewater. The Essential Services Commission of Victoria in its inquiry into an access regime for water and sewerage services provided a schematic overview of a water and wastewater supply system which indicates potential opportunities for competition at different parts of the supply chain. This is in the box below.

Box 3 Water and wastewater supply chain



Data source: ESC, Inquiry into an access regime for water and sewerage services, Draft Report, June 2009, p. 130

We have identified a number of potential situations where rivalry could, in theory, occur in the SEQ water and wastewater markets. A summary is provided in the tables below.

Table 20 - Water supply market – Rivalry and barriers to entry

Potential for rivalry	Barriers to entry
Alternative water supply entity • supply via connection to the water grid; • remote source supplies	Economic barriers – uneconomic to duplicate network.
Interconnection and cross-boundary connections • customers in area serviced by one distribution business connecting with another distribution network; • interconnection agreements between distribution businesses; • Toowoomba Regional Council opportunity to supply customers in area in proximity to pipeline connecting Wivenhoe to Toowoomba;	Difficulty in obtaining planning approval to connect cross-boundary customer due to conflict of interest of rival distribution business.
Water Grid Manager • some customers may bypass the distribution network by contracting directly with WGM;	Limited to large scale customers.
Third party access (if declared) • where a third party enters into an access agreement with a distribution business for access to its network;	Difficulty in obtaining planning approvals for any connecting infrastructure due to conflict of interest of rival distribution business.
Retail competition (not clear if will occur) • where there is competition for the retail services provided by the distribution businesses;	

Table 21 - Wastewater market – Rivalry and barriers to entry

Potential for rivalry	Barrier to entry
Sewer network	
Alternative provider • construction of wastewater pipeline connecting new development/major user to a wastewater treatment plan; • road transport of waste;	Economic barrier – uneconomic to duplicate sewer networks; – small scale of truck transport limits option;
Septic tanks	Institutional/regulatory barriers • conflict of interest for distribution business in development application assessment;
Interconnections and cross-boundary connections • customers may connect to the distribution network of a neighbouring distribution business; • interconnection between sewer networks of distribution businesses by agreement;	Economic barrier – uneconomic to duplicate sewer networks;
Third party access (if declared) • negotiation of an access agreement with distribution business to use its sewer network;	
Wastewater treatment plant	
Alternative provider • construction of new wastewater treatment plants; • landfills for some types of waste	Economic barriers less severe for wastewater treatment plants. Institutional/regulatory barriers • restrictions on councils which require them to supply 'feedwater' for the WCRW scheme; • conflicts of interest in development assessments for new providers; • access to land to connect infrastructure/check meters;
Interconnections and cross-boundary connections • customers in an area serviced by one distribution business may connect a wastewater treatment plant owned by another distribution business; • interconnection between sewer network of one distribution business to treatment plant of another by agreement; Competition for standpipes • customers (trucks) may use standpipes provided by any distribution business, depending on circumstances; Competition for treatment • acceptance of waste sourced from outside of distribution business boundary (ie. by truck) Competition for effluent • a distribution business may sell effluent from its wastewater treatment plants in competition to other distribution businesses;	Economic barriers • economies of scale less of an issue than for sewer networks; Technical • nature of waste being removed. (limits of discharge license);

Many of the opportunities identified for competition by entities other than the distribution businesses relate to greenfields developments and new growth areas.

The factors that determine this actual or potential competition in these markets include:

- institutional and regulatory barriers – any regulatory/licensing constraints and coverage obligations with respect to areas of service provision for Distribution Businesses;
- technical barriers – the ability to physically connect a customer/s; and
- economic barriers – the financial viability providing services to particular customers/markets. This may reflect the natural monopoly characteristics of water and waste water supply infrastructure.

Another issue is the potential for growth in the market for water supply and waste water services. Growth may occur as a result of urban infill or development and growth into new areas. Given technical barriers that exist, it is likely that there is greater scope for competition in these services to occur in growth markets such as new developments.To assess the extent of competition, or potential for competition in the market for water supply and wastewater services, it is first necessary to define each market. This chapter:

- defines the market for water supply services;
- assesses the potential for competitive rivalry and barriers to entry in the market for water supply services;
- defines the market for wastewater services;
- assesses the potential for competitive rivalry and barriers to entry in the market for wastewater services.

5.1 Defining the market for water supply

The concept of a market is defined by the Trade Practices Act 1974 (s. 4E):

> 'market" means a market in Australia and, when used in relation to any goods or services, includes a market for those goods or services and other goods or services that are substitutable for, or otherwise competitive with, the first-mentioned goods or services;.

The key issue in defining a market is the extent of substitutability for the good or service in question. This requires identifying supply and demand factors which provide an indication of the extent of substitutability. There are four dimensions to consider:

- product dimension
  - this considers the definition of the product and the demand and supply side substitutability. Relevant concepts are own price elasticity of demand (ie. the sensitivity of the demand for water services to the price of those services) and cross-price elasticity of demand (ie. the sensitivity of the demand for one product to a change in price of another).
- geographic dimension
  - whether the market for the good or service is limited to a particular region;
- functional dimension
  - a market typically operates at a particular functional level. For example, it may be at the wholesale or distribution level compared to retail. A vertically integrated market may have competition at a number of functional levels;
- time dimension
  - this refers to whether the substitution possibilities in response to a price change over time, so that the longer the time dimension considered, the greater will be the substitution possibilities.

For this market assessment, the product, geographic and functional dimensions will be most relevant.

For the purpose of defining the market, it can be considered as the collection of products/services for which it would be profitable for a hypothetical monopolist controlling all of these products to raise their price by a small but significant and non-transitory increase in price (ie. the SSNIP or hypothetical monopolist test). The market definition test starts by considering a SSNIP for a single product. If faced by a SSNIP, buyers would substitute to other products or locations, then the candidate market is too small and should be expanded. The candidate market is expanded to include other products or locations until the hypothetical monopolist test is satisfied.

5.1.1 Product

The water supply service provided by distribution businesses is the supply of water to either a customer's offtake or to a supply point owned by the distribution business,

from which a customer can draw water. Customers include residential users, commercial users and industrial users.

Distribution businesses may also potentially provide recycled water to customers in some cases. This would be sourced from their treatment plants and could be used to service demand from certain customers – such as industrial users – who have a demand for water treated to a different standard than drinking water. However, the provision of drinking (potable) water is the main service provided (although it is used for both drinking water and non-drinking water).

There have been a number of empirical studies on the sensitivity of the demand for water to a change in price. The own price elasticity of demand measures the percentage change in quantity demanded for a given percentage change in price. Where a small change in price results in a large change in the quantity demand (ie. a price elasticity of demand of greater than 1 in absolute terms), demand is elastic. Where a small change in price has little or no impact on the quantity demanded (ie. price elasticity of demand of less than 1 in absolute terms), demand is inelastic.

Table 23 provides a summary of studies on the price elasticity of demand for water.

Table 23 Studies of the price elasticity of demand for water

Study	Own Price Elasticity of Demand
Dalhuisen[62] (US meta-analysis of 64 studies)	-0.41
Graham and Scott (1997)[63] Residential water demand in ACT	-0.15 to -0.39
Grafton and Kompas (2007)[64] Urban water in Sydney	-0.35
Hoffman et al (2006)[65] Panel study urban water demand in Brisbane	-0.67 - -0.55
Xayavang et al (2008)[66]	
Indoor water use, Perth	-0.70 to -0.94
Outdoor water use, Perth	-1.30 to -1.45

Source: Source: Reproduced from Hughes, N, Hafi , A, Goesch, T and Brownlowe, N 2008, Urban water management: optimal pricing and investment policy under climate variability, ABARE research report 08.7, Canberra, August.

Some of these studies consider residential use, urban demand or indoor versus outdoor demand. While the methodologies differ and the studies are based on different regions, they indicate a range for price elasticity of demand for water of between -0.15 and -0.0.9 for indoor use, with the majority of estimates at the lower end of that range. This suggests that the demand for water is relatively inelastic, with a change in price resulting in a relatively small change in quantity demanded.

Elasticity of demand will be related to water use. It seems likely that the demand for drinking water will be more inelastic than the demand for water for outdoor use (eg. gardens, pools etc). The study that estimated the price elasticity of demand for outdoor water use estimated a range of between -1.3 and -1.45 supports the view that the demand for water for outdoor use is much more elastic.

62 Dalhuisen, J, Florax R, de Groot H and Nijkamp, P 2003, 'Price and income elasticities of residential water demand: a meta analysis', Land Economics. vol. 79, no. 2, pp. 292–308.

63] Graham, D and Scott, S 1997, Price elasticity & sustainable water prices', Annual conference of economists, Hobart, 29 September to 1 October.

64 Grafton, Q and Kompas, T 2007, 'Pricing Sydney water', Australian Journal of Agricultural and Resource Economics, vol. 51, pp. 227–41.

65 Hoffman, M, Worthington, A and Higgs, H 2006, 'Modelling residential water demand with fixed volumetric charging in a large urban municipality: The case of Brisbane, Australia', Australian Journal of Agricultural and Resource Economics, vol. 50, no. 3, pp. 347–59.

66 Xayavong, V, Burton, M and White, B 2008, Estimating Urban Residential Water-Demand With Increasing Block Prices: The Case of Perth Western Australia 52nd Annual conference of the Australian Agricultural and Resource Economics Society, Canberra, Australia, 6–8 February.

There are limited substitution possibilities for the potable water provided by the distribution businesses. Bottled water provides a substitute for drinking water which in some circumstances (for example, in an office) but the price differential between reticulated drinking water and bottled water is very large (although less so when taking into account the cost of plumbing, for example in the case of offices). In rural areas where individual customers are out of reach of water distribution networks, rainwater tanks provide drinking water. In urban areas, rainwater tanks have been used to supply water for toilets, washing machines and outdoor uses. However, the average cost of water provided from rainwater tanks is higher than reticulated water (although if the tank is already installed, there is a very low marginal cost of water supply).[67]

Recycled water can also be used for non-potable uses, for example for outdoor use or by industry. The greatest opportunities to use recycled water are likely to be clustered around wastewater treatment plants given the cost of transport. There may also be opportunities at a micro level to harvest stormwater for outdoor or industrial uses. Importantly, Distribution Businesses cannot differentiate their supply from their potable networks to provide lower-quality water for non-potable uses. This presents a constraint in competing with non-potable sources.

Nonetheless, each of these alternatives represents a small proportion of the total demand for water, and is not perfect substitutes. For example, these alternatives are typically less reliable and many users would require connection to the potable system in any case either as back-up or to provide drinking-standard water to their premises.

Businesses may also implement improved practices to reduce water consumption (eg greater on-site recycling). In fact, businesses are required to prepare and comply with Water Efficiency Management Plans for this purpose.

As such, it seems likely that an increase in the price of potable water provided by the distribution business will not result in a material decrease in the demand for water for this use, not discounting the potential for specific opportunities to arise.

The next step in defining the product dimension of the market is to consider whether the market can be extended to non-potable uses. Where water is used for a purpose for which a lower treatment standard is required, it is possible for substitution to occur between drinking water provided by the distribution business and water treated to a lower standard. For example, the distribution business may provide recycled water from its treatment plants to certain industrial users. Residential users may also

[67] Rainwater tanks are a relatively high cost supply side option. The QWC has also estimated the cost of rainwater tanks in SEQ at around $2/kL to $6/kL – refer to the draft South East Queensland Water Strategy, p80.

substitute away from water provided by the distribution business for their outdoor water use by utilising their rainwater tanks which capture stormwater for outdoor uses such as gardens or pools. However, it should be recognised that, in light of the QWC water restrictions imposed during the drought period, substitution by rainwater tanks was not always a customer choice but was rather forced through regulation, in the form of water restrictions (and encouraged through subsidies).

Stormwater may also potentially be harvested for non-potable uses by the distribution businesses, households or commercial users. This product would be akin to recycled water. There is no harvesting and re-use of stormwater by local councils in SEQ at present (rather it is simply released to the environment). This indicates that a SSNIP by a distribution business is unlikely to lead to substitution to stormwater harvesting and re-use to any significant degree. As noted above, households and commercial premises do harvest stormwater to an extent through use of rainwater tanks. In its SEQ Water Strategy, the QWC identified stormwater harvesting as being currently a 'boutique solution' in which the merits must be considered on a case by case basis.[68]

Therefore, for the purpose of non-potable water, an increase in the price of drinking water provided by the distribution businesses may result in some substitution away from this source to other sources, although the costs of other sources are typically equivalent to or above the cost of drinking water from the network (although these will be situation specific).

These other sources may include rainwater tanks, recycled water provided by the distribution business or recycled water provided by a third party (for recycled water provided by a third party, this may be provided as a stand alone facility servicing an end user or water may be delivered to the end user by truck, depending on the quantity required). As the distribution business cannot distinguish the end use of water it provides to customers, this indicates that these substitutes are still part of the market for water supply services.

The extent to which such substitution may occur, if at all, will depend on the water use in question, the elasticity of demand for water for that use and the relative costs of alternative sources of supply. If a SSNIP occurred, probably for most commercial and industrial applications businesses would not bypass the reticulation network due to the significant differences in the average cost of water.[69] This may also reflect the fact that reliability of supply is crucial for these applications. If substitution does occur, this

[68] QWC, Water for Today, Water for Tomorrow, South East Queensland Water Strategy – Draft, March 2008, p. 91

[69] In practice, the SEQ market has seen more than a SSNIP in recent years, with the impact driven by non-price factors as a result of the water restrictions regime. Additional costs have been imposed on users due to water restrictions and compliance requirements, such as WEMPs for business.

would likely to be only at the margin, in which case it is likely to still be profitable for a SSNIP to occur. This would suggest that both potable and non-potable water uses are included in the market for water supply services provided by the distribution businesses, but that they are not an effective constraint on prices of potable water supply.

In summary, an assessment of the product dimension indicates that the market should be defined in terms of the market for water, which encompasses both potable and non-potable water.

5.1.2 Geographic

The key issue in the geographic dimension is whether the market is limited to a particular region.

For the distribution businesses, the scope of the market from a geographic perspective is largely defined by the boundaries of its constituent councils of each business and the planning schemes of these councils which identify areas for which it intends to supply of trunk infrastructure. This reflects the historical development and boundaries of individual council networks, in light of their planning schemes. The *Integrated Planning Act (IPA) 1997* sets out the framework governing local government planning with respect to trunk infrastructure. This is set out in the 4below.

Box 4 Integrated Planning Act (IPA) 1997

The IPA is a key part of the framework governing the delivery of trunk infrastructure and charging for such infrastructure. It provides for local governments to prepare a Priority Infrastructure Plan (PIP) (s. 5.1.3).

PIPs are a part of the local government's planning scheme that identifies, among other things, the 'priority infrastructure area'. A 'priority infrastructure area' for a local government means the area that is

1. Used, or approved for use residential (other than rural), retail and commercial, industrial and certain community and government purposes; and
2. Will accommodate at least 10 years, but not more than 15 years, of growth for the above purposes.

A priority infrastructure area includes an area not mentioned above that the local government decides to include in the area and which is serviced by development infrastructure.

Data source: Integrated Planning Act 1997

While traditional council boundaries and planning schemes are the primary determinants of the geographic scope of the water supply market, it would appear to be open to councils at present to supply customers outside of their council boundaries.

Therefore, there may be scope for some supply of services outside of council boundaries where it is technically and economically feasible to do so. A SSNIP for the water supply services provided by a distribution business may potentially result in

substitution by other distribution business in some cases. For example, a development which is close to the local government/distribution business boundary (or perhaps more critically the location of the trunk mains) may choose to enter into a supply agreement with the neighbouring distribution business if this is justified by the relative prices. In practice, however, there may be only limited opportunities available for this type of substitution.

It is anticipated that with the new distribution businesses taking over this role of providing water services from councils, these geographic boundaries will continue to be defined by the existing reticulation network and local government boundaries. However, we note that the final legislation and policy framework governing the distribution businesses is yet to emerge.

There is the potential for service provision outside of these defined areas at the discretion of the distribution business where this is technically feasible and commercially worthwhile. This may occur through the interconnection of distribution business networks where feasible or the connection of an individual customer/development located within another council/distribution business boundary (a cross-boundary connection).

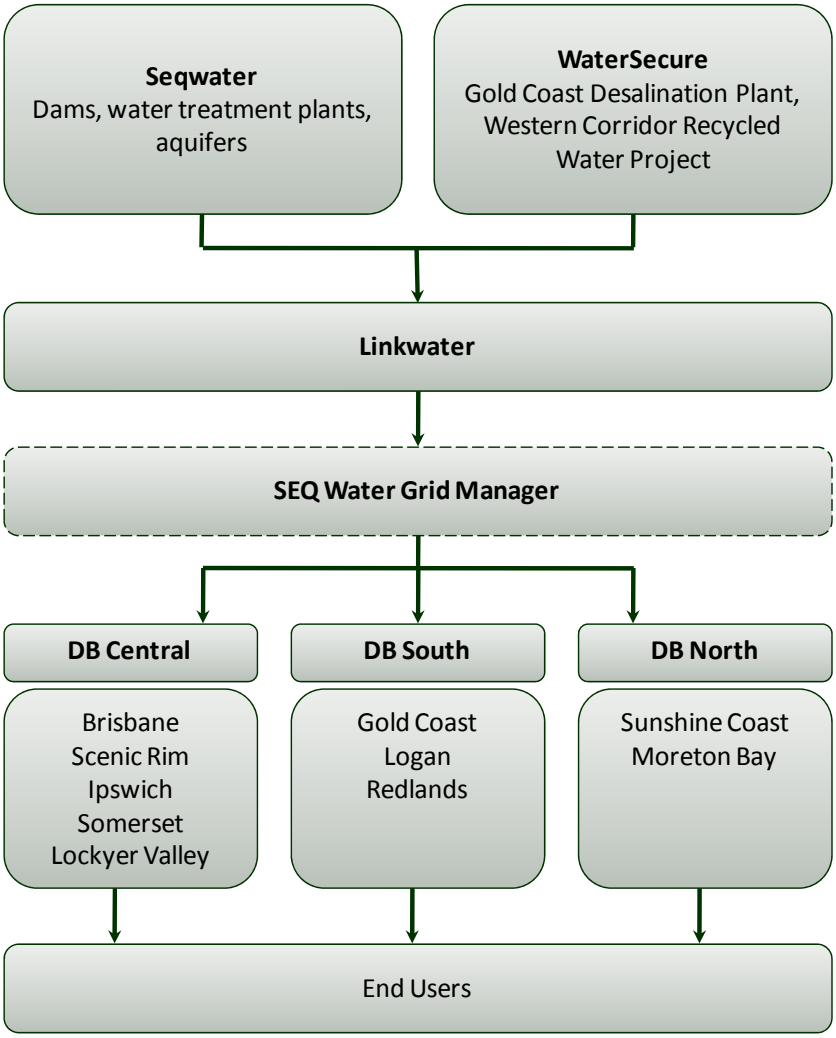
However, opportunities for this to occur may be limited given the natural monopoly characteristics of the distribution networks make bypass unlikely in response to a SSNIP. As such, for the purpose of this report, the geographic dimension of the water supply market is considered to be a regional market which is effectively defined by the series of constituent local government boundaries.

5.1.3 Functional

The functional dimension of the market for water supply services will be determined by the position it occupies within the water supply chain. In the emerging SEQ water market, the distribution businesses have a distinct role in the market structure – that is, the entities distribute water supplied by a declared water service to end-users of the water.

As set out in chapter 2, SEQWater and WaterSecure provide bulk storage and water treatment services. The water produced by these entities is transported by LinkWater, the bulk water transport entity, to the distribution business offtakes. For ease of reference, the diagram depicting the SEQ water grid from chapter 2 is repeated here:

Figure 24. Water supply structure – SEQ Water Grid



Source: Queensland Water Commission, Synergies.

The WGM manages the purchase and sale of water between market participants. The WGM purchases water from grid service providers (includes the entities listed above involved in the storage, treatment, manufacture and transportation of water). This is the wholesale level of the water market. The WGM then supplies this water to grid customers. This part of the supply chain reflects the distribution/retail element of the market. In this supply chain, the distribution businesses provide a combined distribution/retail water supply service to end customers.

Competition may exist at different functional levels in the supply chain. For instance, it is possible in some circumstances for certain customers (for example, power stations) may bypass the reticulation network and connect directly to the grid by sourcing water

from the WGM rather than from distribution businesses. This may occur if a SSNIP in the distribution businesses prices makes it more commercially attractive for certain customers to contract directly with the WGM.

Competition between different functional levels of the market may also occur between distribution businesses and the WGM. For example, industrial users in proximity to the WCRW pipeline may choose to source recycled water from WGM rather than through the distribution business (which may supply both potable and non-potable water). Substitution may also occur from other sources, such as stand alone water service provider (eg of recycled water) services a particular customer/development or an end user may contract directly with the WGM.[70]

In practice, these substitution opportunities from other parts of the water supply chain are limited, such as where there is proximity to a recycled water source, where it is viable to have recycled water delivered by truck, or where the user is large enough to negotiate a contract direct with the WGM (eg power stations). There is unlikely to be any substitution from other parts of the water supply chain for the majority of end users that distribution businesses supply.

It is also conceivable that competition could occur at the retail level, and indeed this has previously been contemplated by the QWC. This would rely upon an access regime for the Distribution Business' infrastructure. In considering this, it is important to note that there is limited competition at the source level, given the central role of the WGM in providing water into the grid. Hence retailers would not be able to compete through upstream procurement of water, but would rather be limited to competing in terms of margin or service.

In summary, while in effect there are many possible substitutes for water supply services provided by the distribution businesses, they tend to be relatively ineffective as a constraint on prices due to the limitations on the extent of their take up by users.

5.1.4 Summary

For the purpose of defining the market for water supply services, the relevant market is the market for the distribution and retail of potable and non-potable water. The market assessment further defined it as a series of regional markets defined according to local government boundaries.

[70] In its 2007 report on urban water supply arrangements, the QWC proposed a model whereby there would be a single distribution entity and full retail contestability in the SEQ water market. The implications for retail contestability of the Queensland Government's decision in 2009 to adopt a model of three distinct integrated distribution/retail businesses are as yet unclear.

5.2 Competition and barriers to entry – water supply

The water supply networks of the distribution businesses are characterised by the natural monopoly nature of the infrastructure, giving these entities market power. In practice, market power may be limited by a number of factors, such as the existence of substitutes, the ability to bypass the network and the scope (if any) for interconnection between networks.

This section of the report examines the extent of rivalry and any barriers to entry in the water supply market in SEQ, having regard to the potential competition and types of barriers identified above.

5.2.1 Coverage obligations

We understand councils have had an obligation to service all customers within water and sewerage areas defined in planning schemes, and reflected in infrastructure charges.

Under the IPA, councils' commitments to provide trunk infrastructure are related to Priority Infrastructure Plans (PIPs). These set out the areas that councils expect to service in future, allowing for expected growth. However, councils have some discretion in deciding to service new areas that are not identified in the PIP. Box 4 set out the framework in the IPA regarding PIPs.

With the transfer of the distribution/retail function of councils to the new distribution businesses, the connection between the service obligations of the businesses and planning schemes of councils will be weakened. While these reforms are not finalised, it is envisaged that the distribution businesses will have a role in advising councils on development applications relating to water infrastructure. More importantly from the perspective of service obligations, it is envisaged that the distribution businesses will be responsible for providing infrastructure to support state and local land use plans. Further, they must develop regional water infrastructure plans (ie. a Regional Plan for Trunk Infrastructure) which must be similar to, and based on common planning assumptions, council PIPs (see chapter 2).

The boundaries and planning schemes of the councils for each distribution businesses would appear to be the primary determinants of the coverage obligations of the businesses. However, it is open to councils at present to supply customers outside of their council boundaries, as well as outside of the areas identified in their Priority Infrastructure Plans, if they wish to do so. Circumstances where this might occur are discussed further below.

In terms of barriers to entry and potential rivalry, the key issues are that:

- under the new regime, the distribution businesses will have responsibilities for planning expanded coverage
  - this might be a barrier for new entrants, particularly where the business can levy infrastructure charges for those new developments and there are other constraints arising from the distribution businesses' involvement in the PIP and planning generally,
- new entrants will not face the cost of the planning activities, as this does not appear to be contestable. Distribution businesses will therefore need to be able to recover their planning costs regardless of who ultimately undertakes and owns the development.

It should be noted that legislation governing the establishment of the new entities, including specifying the powers and roles of the entities, is yet to be finalised.[71] It may be that there will be licensing issues that emerge from the legislation that will have an impact on coverage obligations.

5.2.2 Alternative water supply entity

It is possible for an entity other than one of the distribution businesses to supply water in the SEQ market. This may be either as a customer of the WGM or as an entity with an alternative water source (such as a desalination plant, recycled water or stormwater). In practice however, it is unlikely that an entity other than a distribution business would become a significant supplier of water within the region defined by its constituent local government boundaries due to a number of institutional, economic and technical factors.

Potential for rivalry

Given the monopoly characteristics of the distribution network infrastructure, there may be limited scope for competition for the majority of customers supplied by the distribution businesses. Rather, the opportunities for competition may be relatively limited to new growth areas or individual developments of a scale and/or location to justify remote source supply. Examples of such alternative supply solutions include:

- supply via connection to the water grid;

[71] South-East Queensland (Distribution and Retail Restructuring) and Natural Resources Provisions Bill 2009, Explanatory Notes, p. 3

  - this may occur when a water service provider (other than a distribution business) registers as a customer of the WGM under the SEQ Market Rules. This would allow that entity to enter into a contract to purchase water from the WGM to supply end customers;

- remote source supplies
  - there may be opportunities for an entity other than the distribution businesses to service a remote town or development or an industrial user, with stand alone infrastructure. This would require a water source other than water grid, for example, a desalination plant, recycled water or stormwater source;
  - there are also regulatory requirements to source water other than from the WGM, such as a requirement to obtain a water entitlement or resource operations license.

In either of these cases, opportunities for new market entrants are more likely to occur from growth in the market rather than from switching of existing customers.

Attachment 5 gives an overview of the current council development areas and their proposed servicing strategy for water services. This shows the plans for connection of various regions, including whether it will be via direct connection to the bulk transport grid via an existing distribution network and whether recycled water is proposed for a particular region.

Barriers to entry

Institutional barriers

There are a number of statutory instruments that are relevant in determining whether an entity may become a water distribution business in SEQ. These include: the *Water Act 2000*, the *Water Supply (Safety and Reliability) Act 2008* and the SEQ Market Rules. The specific details of the powers and roles of the new distribution businesses created, including in supporting planning and development assessment processes and trade waste approval processes, are intended to be set out in a Bill that allows these entities to become operational.[72] As such, key details relating to the functions and powers of these entities are yet to be established.

[72] This Bill will be the second step in implementing the reform program. The first step is the South East Queensland (Distribution and Retail Restructuring) and Natural Resources Provisions Act 2009, which was introduced to Queensland Parliament on 6 October 2009.

While a legal opinion may be appropriate on this issue, it would appear from a review of the statutory instruments listed above that, to be a 'distribution service provider' under the SEQ Market Rules, an entity must be registered as a 'water service provider' under the *Water Supply Act*.[73] There does not appear to be a restriction on who may register to be a water service provider. Specifically, the Act states that the following persons must, before starting to operate as the supplier of a water service, apply for registration as a service provider:[74]

> (a) a local government that owns infrastructure for supplying water or sewerage services;
>
> (b) a water authority that owns infrastructure for supplying water or sewerage services;
>
> (c) each person who is—
>
> (i) the owner of 1 or more elements of infrastructure for supplying water or sewerage services for which a charge is intended to be made; or
>
> (ii) if a person is nominated in a regulation as a related entity of a person mentioned in subparagraph (i)—the person nominated.
>
> However, subsection (1) does not apply to a person who owns infrastructure that produces and supplies recycled water unless the person also owns other infrastructure for supplying a water or sewerage service.

The SEQ water market, at both the wholesale and distribution/retail level (ie. WGM purchases of water from grid service provider and sales to customers) is a market for 'declared water services'. Accordingly, another threshold which must be met to participate in the SEQ water market is for the water services provided to be declared water services. Water services are declared by the Minister under the *Water Act 2000*. The QWC must make a recommendation regarding whether a water service should be declared for decision by the Minister. The QWC must not recommend that a water service, or part of a water service, be declared by the Minister unless the QWC is satisfied[75]

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[73] It should be recognised that, since the SEQ Market Rules were drafted, the policy approach with respect to industry structure has changed (with three vertically integrated DB's now being established, rather than one distribution-only business and several retailers). Consequently, the current draft of the rules may need to be amended to reflect this new approach.

[74] Water Supply (Safety and Reliability) Act 2008, Part 3

[75] Water Act 2000, chapter 2A, part 5A, division 2

(a) the water service, or the part of the water service, is necessary to ensure regional water supply security for the SEQ region; or

(b) the water service, or the part of the water service, is necessary for efficiently supplying an existing declared water service; or

(c) the water supply works for supplying the water service, or the part of the water service, are necessary for the efficient and effective operation of water supply works for supplying an existing declared water service.

It will also be open to an entity to become a customer of the WGM under the SEQ Market Rules. This would involve entering into a supply contract with the WGM to source water which would then be supplied to an end customer.

Alternatively, an entity may seek to supply water to a customer that is not sourced from the water grid. This would require a remote source, such as desalination, recycled water or stormwater, and a pipeline connection to the customer (either stand alone or via access to the existing distribution network). There may also be regulatory requirements, such as licensing, that must be met regarding water sources.

This indicates that there is no institutional prohibition per se on entities other than the three distribution businesses from participating in the water market, although there are regulatory barriers that must be satisfied.

Economic barriers

The economic characteristics of the infrastructure mean that the reticulation networks are unlikely to be duplicated by another service provider. Specifically, existing water reticulation infrastructure has natural monopoly characteristics, with a relatively high proportion of fixed costs, making the infrastructure uneconomic to duplicate. That is, it is more efficient for one entity to supply the market than two or more.

This suggests that there is little scope for competition for the distribution businesses in servicing the markets within their water service area. In practice, any such competition is likely to occur through third party access to the reticulation network or be limited to relatively isolated cases, including the case of large customers such as power stations, (of either interconnection of networks or bypass of the distribution network through stand alone supply or competition from the WGM). In some cases (although not all), the new entrant would need to construct a connecting pipeline between water source and end user. While the economic viability of such a proposal would need to be considered on a case by case basis, the economies of scale in trunk infrastructure may give the incumbent distribution businesses a competitive advantage.

Technical barriers

Another factor which limits the scope for competition in water supply is the technical features of a water supply system. Water supply is driven to a large extent by the source of water in a catchment, with supply and reticulation infrastructure determined by the geographic location of sources and markets. This characteristic means that water supply tends to be centralised and managed by a single operator of monopoly infrastructure. Trunk reticulation infrastructure is therefore less likely to be contestable in a practical sense.

Although duplication of reticulation networks will be uneconomic, there may be scope for some stand-alone water supply developments to emerge which are not connected to the reticulation network. This type of stand-alone development may provide competition for distribution businesses by competing for new customers, such as new urban developments or large industrial users. This would effectively allow new customers to bypass the distribution businesses networks.

The pricing approach of the distribution businesses may facilitate bypass in these circumstances by limiting their ability to price discriminate in order to connect a customer who may have viable bypass opportunities. Price discrimination in this case may be efficient, provided the new customer pays at least the incremental cost of supply. In this regard, the regulatory arrangements in the longer term should contemplate the inclusion of arrangements for prudent discounting to prevent bypass, similar to the arrangements for customers of electricity transmission network service providers under the National Electricity Rules.[76]

However, while bypass opportunities may exist, stand-alone water supply developments are unlikely to be a significant competitive threat to the distribution businesses as the natural monopoly characteristics of their network means that any such competition will be fairly marginal and typically limited to growth opportunities. As incumbents, the distribution businesses are also likely to have a significant advantage in terms of customer perceptions of security and reliability of supply.

There may also be technical barriers for businesses to invest in measures to reduce their water requirements.

[76] National Electricity Rules, s. 6A.26

5.2.3 Interconnection and cross-boundary connection opportunities

Interconnections between distinct distribution networks or across distribution business regional boundaries provide economic opportunities to service some customers at a lower cost than would otherwise occur.

Potential for rivalry

Cross-boundary connection

Cross-boundary connections are most likely to be viable around the boundaries of distribution networks. For instance, a customer near the regional boundary of a distribution network may be physically closer to a water supply source from another Distribution Business than it is to supply sources owned by the distribution business that services its locality. In this case, connecting to the other network may be lower cost option for that customer. The drivers of cross-boundary connections are likely to be distance (to the trunk network), capacity, topography and prices offered by neighbouring distribution businesses.

As noted above, it would be open to distribution businesses to service customers outside their region should they wish to do so. In some cases, such as for larger industry or urban developments, a distribution business may seek to negotiate an infrastructure agreement or service level agreement with the end customer.

The economic opportunities for cross-boundary connections will also be affected by the pricing policies adopted by each distribution business. For example, it may be worthwhile for a business/urban development to connect to a distribution network in another council area if water charges charged by the distribution business servicing that area are materially lower for that. Again, the ability of the distribution businesses to price discriminate to attract/retain users will be a factor impacting on any competition between distribution networks. Postage stamp pricing by a distribution business may provide some customers (ie. those whose actual cost of service is less than the average) with an incentive to seek a cross-boundary connection where it is technically and economically feasible to do so.

As an example, if the current council charges provide a guide to future pricing, DB Central and DB South will have considerable price differential in their infrastructure charges applying to particular regions. Infrastructure charges for water at Bracken Ridge (BCC/DB Central) are $4,857/ET (equivalent tenement), whereas in nearby Albany Creek (Moreton Bay/DB North) it is $881/EP (equivalent person), which

approximates to $2,643/ET.[77]. This suggests the potential for considerable price differentials in networks that are in relative proximity. This in turn gives potential customers in these areas an incentive to negotiate connections to their least cost source of supply. However, transparency with regard to costs and pricing is clearly an issue. It should also be noted that the transitional pricing provisions, which establish a price path that will apply until 2017/18, may distort pricing between councils/distribution businesses.

The pipeline linking Wivenhoe Dam with Cressbrook Dam near Toowoomba may also provide a fairly unique opportunity for Toowoomba Regional Council (TRC) to supply water to customers that are outside of its council area but along the pipelines route – assuming Council owns this pipeline. This may require some capital expenditure by TRC, however, depending on the customers and growth opportunities in this area, this may be a circumstance where TRC could potentially compete with the DB Central.

Interconnection

The physical boundaries of the reticulation network infrastructure of each of the three distribution businesses reflect the boundaries of their constituent councils. These historically determined boundaries effectively define the geographic scope of the market serviced by the new distribution businesses. Further, council boundaries often follow topographical features, such as rivers, which form a natural barrier to interconnection.

Synergies understands that, given this historical background to the development of the council reticulation networks, there is very little interconnection between the networks at present.[78] Clearly, connection of previously distinct networks belonging to those councils merging to form a new distribution business will occur in future. However, the fact remains that there will be almost no interconnection between the networks of the three new distribution businesses at the time of commencement of their operations. This also reflects the fact that significant reticulation infrastructure has been transferred to LinkWater.

In terms of the scope for interconnections in future, the key consideration is what would be the driver for such interconnections. Interconnections across distribution business boundaries will occur by agreement between the parties. These may be driven by the requirements of a particular large customer, for example, when interconnection,

[77] Based on an assumption of three people per tenement. Note these charges include bulk charges, which would need to be taken out by the distribution business in their pricing.

[78] Synergies understands that there is no water network interconnections, except at Logan Road, which is a nominated bulk transfer point metered by the WGM.

by providing a lower cost means of supply for certain customers, is a more economically efficient option than servicing that customer from the distribution businesses own infrastructure. This would require agreement between the parties on terms for interconnection. Examples of interconnection exist in electricity distribution networks in Queensland. Energex and Country Energy have a commercial agreement regarding a connection to supply electricity at Terranora near the NSW border in some circumstances. Ergon Energy also has an agreement with Energex to use its substation at Postman's Ridge.

There may also be scope for interconnections to occur in more closely settled urban areas (along the north-south corridor), where the distances between networks are not so great as in rural areas. Synergies understands that there may be some instances where interconnection between distinct networks is technically feasibly given their proximity (for example, at Rochedale in Brisbane, Brisbane City Council and Logan City Council each have water mains in very close proximity). In these cases, interconnection could be technically feasible depending on hydraulic considerations, provided relevant planning/building approvals could be obtained.

Barriers to entry

There may be institutional barriers to distribution businesses' competing with each other for customers where the market opportunities identified above exist. In particular, for cross-boundary connections, it is likely that the customer seeking the connection will need development/planning approval from the relevant local government.

While there is further separation of the development approval role from the distribution businesses' service delivery role has been flagged as part of the current reforms (see chapter 2), given that the distribution businesses are owned by the local governments, there is a conflict of interest which may be a barrier to entry. This is because the local government must decide on a development application that may be contrary to the commercial interests of the distribution business. This conflict may be more acute in those instances where the distribution business has 'concurrence agency' status in development approvals, allowing them to direct the local government in its role as assessment manager.

Establishing interconnections between networks requires commercial agreement between the neighbouring distribution businesses on the terms and conditions of water supply in these cases. This is likely to be driven by the circumstances of the particular case.

Interconnection is also likely to be a fairly expensive exercise in practice due to the need to shut down water mains and possibly require road closures. While technically feasible, these cost considerations may limit the viability of interconnection.

5.2.4 Water Grid Manager as competitor

Potential for rivalry

The opportunity also exists for some customers to bypass the distribution network altogether and source water directly from the WGM. As shown in the diagram above, the WGM purchases 'declared water services' from grid service providers (including the storage, treatment, manufacture and transportation of water) and supplies it to grid customers. Customers of the WGM may potentially include the distribution businesses and end users who chose to contract directly with the WGM.[79]

There may be an opportunity for major users to enter into a contract with the WGM as a customer. This type of arrangement would also require access to pipelines connecting water source and end user. For industrial users in proximity to the WCRW pipeline, this may be a commercially viable alternative compared to sourcing water from the distribution network. Some major users may have the flexibility to locate where relatively low cost water supplies are available.

Barriers to entry

The option of an entity sourcing water directly from the WGM would allow bypass of the distribution network. However, this opportunity is likely to be limited to large scale customers who are able to enter into a contract with the WGM and comply with all of the necessary conditions in the SEQ Market Rules with regard to system technical and performance standards. Further, it would require access to a pipeline linking the source with the end customer.

Accordingly, contracting directly with the WGM will not be an option for residential consumers and is unlikely to be feasible for the majority of commercial and industrial users for whom access to the distribution network is the most economic water supply option.

[79] We note that the current version of the SEQ Market Rules reflects the now superseded model of a single distribution entity and multiple retailers, and therefore may be subject to change. However, it seems reasonable to assume that any entity meeting the thresholds applicable to be a 'customer' under the rules will be able to contract with the WGM.

5.2.5 Third party access

Potential for rivalry

As noted above, the way the SEQ Market Rules are drafted does not rule out third parties (ie. entities other than the distribution businesses) from participating in the water market as a supplier. Given the natural monopoly characteristics of reticulation networks, this third party participation may occur via third party access to the infrastructure. NSW has developed a water specific access regime. An overview of this is given in the box below.

Box 5 NSW Water Industry Competition Act 2006

The NSW *Water Industry Competition Act (WICA) 2006* establishes an access regime to permit private sector access to certain water infrastructure services and sewerage infrastructure services, allowing competition in the supply of water services and the provision of sewerage services. The WICA also includes provision for a licensing regime for private sector participation in the water industry and a dispute resolution process to resolve disputes arising under the access regime and other disputes arising in connection with sewer mining.

Licensing regime – private entities that seek to provide drinking, recycled and other grades of water, as well as those seeking to provide sewerage services, will need to be licensed. The Act makes it an offence to construct, maintain or operate any water industry infrastructure or supply water or provide a sewerage service by means of any water industry infrastructure without a licence.

Access regime – the aim of this regime is to facilitate third parties gaining access to the incumbent's infrastructure service, allowing third parties to become new service providers in the upstream or downstream markets. Access may occur to supply drinking water, recycled water or wastewater services. Initially, the regime only applies to access seekers in the Sydney and Hunter regions.

Coverage under the regime means that a service provider must negotiate in good faith to accommodate the access seeker's requirements. If the parties fail to agree, disputes may be referred to IPART for arbitration.

Sewer Mining disputes – WICA includes a mechanism to resolve disputes about sewer mining access. It provides for dispute resolution between the sewerage service provider and the sewer miner to be arbitrated by IPART (or nominee), but only if the service provider has lodged a notice with IPART setting out the provider's policy on sewer mining. The arbitrator must give effect to the service provider's policy and matters prescribed by regulation.

Sewer mining can only occur with the agreement of the sewerage service provider. WICA does not provide a mechanism to compel the service provider to grant access to the sewage resource itself, as opposed to the sewerage infrastructure. Sydney Water retains control over the amount of wastewater that may be extracted from its sewerage network.

Data Source: http://epress.anu.edu.au

Third party access would occur where an entity supplies water sourced from either the water grid or from outside the water grid participants (eg a remote source of supply such as desalination, recycled water or storm water), using the distribution businesses reticulation infrastructure to do so.

It should be recognised that third party access may have implications for postage stamp pricing, where this is adopted by a distribution business. Access imposes an obligation on the service provider to negotiate in good faith for access with an access seeker. While the distribution business and, ultimately, the regulator in the event of a dispute, will have some discretion in determining price structure, it is a clear principle of third party access that access prices should be reflective of efficient costs and should provide incentives to reduce costs or otherwise improve productivity.[80] In light of this, the potential exists for existing postage stamp pricing approaches to unravel unless they are mirrored in access charges for distribution networks.

Barriers to entry

At present, there is no third party access to the water reticulation infrastructure of the existing distribution/retail businesses of the councils. However, this remains an option in the future. This was expressly flagged by the QWC in its initial report on the SEQ water reforms.[81] The QWC considered there is scope for improved economic regulation of the distribution infrastructure associated with water supply services and recommended that a regime for the declaration of significant water distribution assets be established to provide improved transparency and a strong basis for retail competition if introduced in the future.[82]

There may also be conflicts of interest in terms of development approvals for constructing connecting pipelines, given the potential role of distribution businesses in the development approval processes of local governments (discussed above).

It should also be noted that uniform charges could be unraveled unless they are effectively mirrored in access charges for distribution networks. In principle, access charges should be reflective of the efficient cost of service provision.

5.2.6 Retail competition

Retail competition for water supply services was clearly envisaged by the QWC as part of the water reforms. The implications for retail contestability of the recent State Government decision to adopt a model of vertically integrated distribution/retail businesses are as yet unclear.

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[80] QCA Act 1997, s. 168A, Pricing Principles

[81] QWC, Our Water, Urban Water Supply Arrangements in South East Queensland, Final Report, May 2007, p. 76 - 77

[82] Note that since the publication of this report, the Queensland Government has adopted a model of integrated distribution/retail businesses.

The electricity sector in Queensland provides an example where retail contestability has been introduced, separating out the distribution and retail markets. This allows customers to switch their retail service providers, with associated obligations on the distribution businesses to facilitate connections/disconnections. In the context of the SEQ water distribution businesses, the current approach is to provide a bundled retail/distribution service to customers.

Nevertheless, should the reticulation network be declared for third party access, this would have a similar outcome as retail contestability in that it would allow a third party to service a downstream market (ie. water users) by gaining access to the distribution businesses' reticulation networks.

5.2.7 Technical efficiency

It should also be noted that customers of the Distribution Businesses may invest in technologies that reduce their demand for water supplied by these businesses. For example, a household may install water efficient appliances or an industrial user may implement WEMPs that reduce overall water consumption.

5.3 Defining the market – wastewater

The market for wastewater services is defined in this section, using the framework outlined in the previous chapter, namely, in accordance with the following market dimensions:

- product dimension;
- geographic dimension; and
- functional dimension;

5.3.1 Product

Distribution businesses essentially provide two distinct but nevertheless related wastewater products:

- a sewer service - the transportation of waste to the treatment plant using the distribution businesses' sewer network; and
- a treatment service – the treatment and disposal of trade waste, sewerage and non-waterborne waste at a wastewater treatment plant.

Given the nature of the service (ie. for health reasons, it needs to be disposed of promptly), the demand for the distribution businesses' waste removal service is likely to be relatively inelastic. This suggests that a SSNIP by the distribution business is unlikely to result in substitution away from use of the businesses' waste removal service to any significant extent.

There are limited substitution possibilities for this waste removal service. There is the option of removal of wastewater and delivery to the treatment plant by truck. This occurs to a very limited extent at present. Given the nature of the product and the scale limits of truck transport, this option will be limited to a small number of customers, such as a large business, possibly firms with trade waste to remove.

For rural locations septic tanks may provide a substitute for some customers. These have to be approved by councils as part of development applications and comply with building code standards. However, in reality, the majority of customers relying on septic tanks do not have physical access to connection to the wastewater network. Given these limitations, septic tanks will not be an effective constraint on a price increase by distribution businesses. As such, a SSNIP is likely to be able to be sustained by the distribution business, even though some customers may opt to use an alternative means of waste removal.

Similarly, a SSNIP for waste treatment component of the waste removal service managed by the distribution business is unlikely to lead customers to substitute to alternatives. Again, in isolated cases there may be scope for on-site wastewater treatment plants owned and operated by other entities. There is also some transport of non water-borne waste to landfills, however, this is unlikely to be of a scale that will preclude a SSNIP.

The market may therefore be defined as the market for waste removal services, which includes both use of the sewer network and treatment.

5.3.2 Geographic

As with the water service, the scope of the market for wastewater removal services from a geographic perspective is defined by the boundaries of the distribution businesses' constituent councils and the planning schemes of these councils. These planning schemes include priority infrastructure plans which identify areas for which it intends to supply of trunk infrastructure, including wastewater infrastructure.

It is open to councils that presently provide these services to service customers outside of their council boundaries. This may occur in some instances where interconnection of sewer networks or connections across council boundaries are economically and

technically justified, although this is unlikely to be significant. An example may be a user in DB South (say in Logan) connecting to trunk infrastructure in Brisbane (DB Central) where the costs are lower. A SSNIP by the distribution business is therefore unlikely to lead to such substitution to suppliers in other regions to any significant extent.

Accordingly, the market for wastewater removal services is a regional market which is effectively defined by the local government boundaries that apply to each distribution business.

5.3.3 Functional

The supply chain for wastewater services consists of three functions:

- receipt or acceptance of sewerage or water-borne trade waste to sewer network;
- transport through the network; and
- treatment and discharge at the wastewater treatment plant.

This wastewater removal service is therefore provided in a vertically integrated supply chain.

The distribution businesses therefore control the entire supply chain, providing a combined distribution/retail wastewater removal service to end customers. As such, there is no scope for substitution between different elements of the supply chain.

5.3.4 Summary

For the purpose of defining the market for wastewater services, the relevant market is market for waste removal services, which includes both use of the sewer network and treatment facilities. The market is further defined as a series of regional markets delineated according to local government boundaries.

5.4 Competition and barriers to entry - wastewater

Wastewater systems encompass sewer networks and treatment plants. The sewer networks are natural monopoly infrastructure as they have high fixed costs, making them uneconomic to duplicate. The distribution businesses therefore have market power in the wastewater removal market. This market power may be limited in some cases by the existence of substitutes (such as trucks or stand alone treatment plants for major users), the ability to bypass the network and the scope (if any) for interconnection between networks.

The potential for rivalry and the existence of any barriers to entry to this industry, having regard to institutional, regulatory, technical and economic factors, are examined below.

5.4.1 Coverage obligations

Similar to water services, under the IPA, councils' commitments to provide wastewater infrastructure are related to their PIPs, which set out the areas that councils expect to service in future. However, councils have some discretion in deciding to service new areas that are not identified in the PIP. This may include customers outside the local government area.

While the institutional framework around the operation of the distribution businesses is yet to be finalised, the intention is for the distribution businesses to align their planning for trunk infrastructure, including wastewater infrastructure, with the planning schemes of the local government areas, which in turn are reflective of the SEQ Regional Plan. As such, it is probably reasonable to assume that distribution businesses will continue with these service obligations, but will also have the discretion to service new areas that are not identified, including outside of the distribution businesses' council boundaries.

5.4.2 Alternative wastewater service providers

Potential for rivalry

The sewer network owned by the distribution businesses has natural monopoly characteristics, making it uneconomic to duplicate. This suggests that there is little likelihood of a new market entrant duplicating the sewer network.

Although there is not the potential for a significant degree of competition, there may be potential for competition in certain limited cases. For instance, there may be scope for an alternative entity to construct a wastewater pipeline connecting a new development or a major industrial user to a wastewater treatment plant. These opportunities are likely to be limited to greenfields developments or individual cases where new wastewater pipeline infrastructure needs to be constructed.

There are also potential cross border opportunities at the boundaries between the new distribution network (refer Attachment 6).

There is also some competition from road transport of waste, with some customers transporting waste, including trade waste, to treatment plants by truck. This is an example of competition at the product level. Given the small scale involved in truck

transport however, these are likely to be fairly limited opportunities in the context of the entire wastewater supply market.

Businesses can also choose to invest in in-site treatment and reduce their discharge (volume or mass load) to the sewer, thereby reducing their trade waste costs where tariffs are set accordingly.

However, the situation is different for wastewater treatment plants. These are more decentralised facilities as the source of wastewater are multiple and diffuse (in contrast to water sources, which tend to be a more centralized source, such as a dam). This suggests that there may be greater opportunities for treatment plants to be established by other providers, particularly in growth areas where there are greenfields developments. This will really be a case by case assessment of the economic viability of establishing a treatment plant to service a particular market. Geography, distance and the size of the new market are likely to be key considerations in determining whether this is worthwhile. There is the possibility of 'cherry picking' higher return projects by new entrants. Accordingly, there may be more opportunities to bypass the distribution businesses' wastewater treatment plants to service.

Landfills also provide an alternative for some types of non water-borne waste. By way of example, the Sunshine Coast Regional Council charges for disposal of oily waste at Eumundi Road landfill at $0.17/litre and grease trap waste at $0.12/litre. Transport costs will be a key factor in determining the viability of competition from this source. In principal, there could competition between wastewater treatment plants and landfill operators for this service.

Barriers to entry

Economic

In terms of the sewer network, as noted above, the economies of scale in this network are a barrier to entry as it will be uneconomic for another provider to duplicate the infrastructure. The scale limitations of truck transport of wastewater place a limit on the potential significance of this source of competition for the distribution businesses. Given the small volumes that can be transported by truck, vehicle transport is likely to be limited in its share of the wastewater removal market.

The economic barriers to entry to the wastewater treatment section of the market are less severe as there is greater scope for the establishment of standalone treatment plants near sources of wastewater, such as new urban developments or industrial developments requiring trade waste treatment.

In either case, opportunities for new entrants will be more significant in new growth areas and greenfields developments. At the least, the distribution businesses do not appear to have an incumbent advantage in servicing these markets.

Technical

The technical barriers to a new entrant providing wastewater removal services are less than for water. Given the more decentralised nature of wastewater treatment sources, there will be more opportunities for localised solutions. Further, unlike water, sewerage and wastewater has to be dealt with immediately for health reasons. Therefore, long distance transport of wastewater and/or its storage for long periods of time is not an option. Moreover, pumping of wastewater is less efficient than it is for water. These technical factors make 'local' or stand alone wastewater transport and treatment options, possibly provided by private operators, a viable alternative in some cases.

The more diffuse nature of the wastewater treatment facilities is shown in Attachment 6.

Institutional/regulatory

A legal review of legislation may be appropriate to establish whether any regulatory barriers to non-distribution business operating in the wastewater removal market exist. In this regard, we note the evolving nature of regulatory arrangements in this area.

There are regulatory limitations that currently apply to some councils regarding 'feedwater' for the WCRW scheme. The South East Queensland System Operating Plan provides a process to secure the availability of western corridor feedwater to ensure the ongoing operation of the WCRW scheme. BCC and ICC presently must make available feedwater at specified locations. There are also limitations on the councils entering into any arrangements with a third party in relation to the use of and/or supply of western corridor feedwater.[83] The SEQ Water Strategy also recognises the need to preserve sites for future supply sources such as desalination plants and PRW schemes. Identified sites for potential future PRW schemes include augmentation of supply from: Hinze Dam; North Pine Dam; Sunshine Coast; and Toowoomba.[84]The conflict of interest that the distribution businesses will have between their roles as commercial service providers and their role in the development approval process may be a significant barrier to entry. Distribution businesses may have an incentive to

[83] South East Queensland System Operating Plan, Release 2.2 – Release Date 21 September 2009

[84] SEQ Water Strategy – Draft, QWC, March 2008

direct/advise the council managing the development assessment process to refuse a development application by an alternative wastewater removal service provider or may recommend unduly severe conditions on an approval.

Synergies understands that councils have been reluctant in the past to approve private sewerage treatment facilities in SEQ due to the perceived risk of financial failure of developers, leaving council with the responsibility to service the area in question. There is also an issue of whether private providers would have a right to access land as required to connect their infrastructure to wastewater sources and to check meters. However, this issue is not likely to be material. There is precedent in the electricity industry in Queensland for private retail service providers installing and reading meters.

5.4.3 Interconnections and cross-boundary connections

Interconnection refers connection occurring between the wastewater networks (sewer network and treatment plants) of neighbouring distribution networks. Cross-boundary connections are when a particular customer within one council boundary is connected to the wastewater distribution network of a distribution business servicing a neighbouring council.

Potential for rivalry

Cross-boundary connections

As with water supply, there may be commercial opportunities in some cases for a customer to connect to the distribution network servicing a neighbouring council area rather than to the local distribution business. These opportunities may be specific to the circumstances, and will be driven by factors such as topography, distance and the pricing policies of the respective distribution businesses. These opportunities for new entrants are likely to be limited to new developments or isolated cases of major customers such as a factor being developed in relative proximity to neighbouring distribution networks.

As wastewater treatment plants are more numerous and widely spread throughout a distribution businesses' service area, there may be options for a customer to connect to a wastewater treatment plant that is owned by another distribution business. Again, distance, topography and pricing approach will be key determinants of the viability of cross-boundary connections, as will be the nature of the discharges that are allowed under a discharge authorisation.

Other opportunities for competition, albeit fairly minor, include:

- competition for standpipes
  - standpipes are a facility that provides a source of water for trucks. A distribution business could set up standpipes near its boundary which could be used by customers that would otherwise use standpipes supply by the distribution business in their area;
- competition for treatment
  - WWTPs at present accept waste sourced from outside of their council distribution network. For example, private operators may transport waste to WWTP for treatment. Distribution businesses may compete for waste receival from this source.
- competition for effluent
  - the effluent that is produced after wastewater is treated at a wastewater treatment plant is often purchased by customers for subsequent use. Uses include dust suppression and possibly watering of parks and sports grounds. Recycled water schemes may also purchase the effluent for further treatment. A distribution business could possibly sell effluent from its wastewater treatment plants in competition to other distribution businesses, adopting price discounting to attract this custom.

Distance and pricing will be important determinants of the extent of competition for these services. The extent of competitiveness of these services will have implications for the QCA's consideration of the appropriate form of economic regulation, if any, for these services. Where prices are market based for these services (ie. determined by the price of viable alternatives), they should arguably be either uncovered services (ie. not subject to price regulation).

Interconnection

Synergies understands that, at present, there are no interconnections between various council wastewater networks. These networks reflect historical council boundaries. Some load sharing occurs between treatment plants within a council area, based on the available spare capacity and demand.

In principle, interconnection between networks is an option where this would be a 'least cost' option to service a particular area. However, it would be dependent on the connecting service providers to reach an agreement.

Barriers to entry

Economic

The economies of scale in the sewer network suggest that it will not be efficient to duplicate this infrastructure. This poses an economic barrier to a new entrant constructing sewer distribution infrastructure in competition with a distribution business. Accordingly, opportunities for bypass will be relatively limited for the sewer network.

Given that wastewater treatment plants are fairly widespread across a region due to the need for proximity to sources and discharge points, there is less of an economic barrier to entry to the industry. That is, it may be feasible for a new entrant to establish a plant to service a particular area, such as a new urban development, as economies of scale are not present to the same extent as in the sewer network.

Technical

An issue to be considered when looking at the possibility of interconnections or cross-boundary connections in wastewater infrastructure is the nature of the waste being removed. For trade waste, it is not just a question of the volume but the composition. Certain trade wastes may need to be treated differently, with differences taken into account in pricing.

5.4.4 Third party access

Potential for rivalry

Third party access to the wastewater distribution network is one means of promoting competition in the market. This could include access to the sewer network or to treatment plants. As discussed above, the case for access to the sewer network may be stronger than for treatment plants as the economies of scale in the pipe network make it uneconomic to duplicate. This is less obviously the case for wastewater treatment plants. There is also scope for competition in the provision of some WWTP services (such as competition for waste received by truck and competition from landfills for non water-borne waste).

Access would allow a third party to service end customers by using the waste removal network. To do so, the third party would need to negotiate an access agreement with the distribution business as well as have a contract with the end customer.

Barriers to entry

At present, the wastewater distribution network is not declared for third party access. This would need to occur before private operators could enter the market this way.

5.4.5 Technical efficiency

Customers of the Distribution Businesses may invest in technologies that reduce their demand for the wastewater removal services provided by these businesses. For example, an industrial user may invest in on-site treatment of trade waste to reduce the quantity or composition of trade waste being discharged into the sewer network/treatment plant.

5.5 Summary

This chapter examined the potential for rivalry and the barriers to entry in both the water and wastewater markets. In general, this potential for competition exists predominantly in specific cases, particularly new customers such as urban developments or major industrial users. This may occur through stand-alone developments or cross-boundary connections. There is less scope for competition for existing customers. For water services, there is the possibility of bypass of distribution networks through direct contracting with the WGM. Third party access provides a means of promoting competition in the markets for water and wastewater networks.

6 Excessive returns and cross subsidy

This section examines whether existing charges may provide excessive returns to the asset owner. For the purpose of this chapter, excessive returns are defined as returns over and above maximum allowable revenues for a business using the building blocks approach to pricing. It also examines cross subsidy issues in relation to existing charges.

It is important to note that we have assumed that the Minister will set a value for councils' water and wastewater distribution assets in accordance with the past valuation used to determine a transfer price for bulk water assets.

6.1 Current prices

Excessive returns are usually measured against a maximum allowable revenue for an asset. The value of those assets is central to this assessment, however values are yet to be set for the water and wastewater assets. If these opening values are to be referenced to the previous valuation conducted to transfer bulk supply assets to the state, then assumptions used for that valuation are relevant.

The cash flow valuation of council assets incorporated a number of assumptions about future costs and revenues, including demand, prices, operating costs and capital expenditure. Based on our understanding of KPMG's published methodology, it appears that current prices and costs were used to set the opening RAB for valuation purposes, and then this RAB was adjusted each year for inflation, capital expenditure, disposals and depreciation.[85] Prices were then adjusted over the 30 year period accordingly.

[85] Ibid. p20.

The value for each council's combined water and wastewater operations was then the discounted value of this expenditure and revenues, being a function of price and volume. In conducting the valuation of council assets, KPMG noted that:[86]

> Both the QCA and NWC have verified, through independent assessment of prices, that SEQ councils have been meeting the full cost recovery requirements set out [in] COAG's water reform agenda and reinforced through the NWI.
>
> In setting prices, councils have made an implicit valuation of the value of the assets, and what the consumers are prepared to bear. These prices should form the basis of the valuation of the assets (net present value of future cash flows)…
>
> Assuming that the councils have been using these principles then the current prices would implicitly reflect the asset values of the businesses, unless the DORC valuation is lower (which seems unlikely given experience in other jurisdictions).

This would suggest that the prices current at the time of the KPMG valuation were consistent with the MAR from those assets. Indeed, that assumption was used as the basis for the valuation of the assets themselves, which used a cash flow (or economic) valuation rather than a cost-based valuation (eg using Depreciated Optimised Replacement Cost, or DORC).[87]

It could be said that prices are not excessive if they are consistent with those assumed for setting the opening RAB and the valuation, or have only been adjusted to take account of factors related to reforms, such as bulk water prices, or other (justifiable) changes in cost. As such, the starting prices assumed for the valuation become a key consideration. The QCA's recent work in monitoring retail water price increases is relevant in considering these changes over time. This monitoring may also provide an updated assessment about current prices which may differ from KPMG's assessment above.

Furthermore, a different conclusion might be reached using a different asset value, such as DORC. KPMG has noted that DORC is unlikely to be greater than the values generated for valuation and transfer process, and hence current prices are less likely to be excessive using a DORC value.

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[86] Ibid. p31.

[87] We do not agree that the prices current at the time could be interpreted as reflecting users' capacity to pay, or Council's assessment of their capacity to pay. While there are a number of issues relating to the valuation of council's water and wastewater assets, and the use of that value for setting an opening RAB, this is beyond the scope of this report. We have therefore limited out comments to the issues relevant to price setting and monitoring going forward.

6.2 Asset values for water supply and wastewater

The level of efficient or allowable revenue is influenced by the value of the asset base. Council asset values are to be set by the Minister, and may be based on the valuation of council assets used for the transfer of bulk assets to the State Government. In this case, asset values will be the residual of the aggregate valuation for each council's water and wastewater assets, less the value of the transferred bulk assets. This value should also exclude, or separately identify, those assets that are providing bulk transport services to the WGM.[88]

Assuming this valuation is used as the basis for setting prices, then separate water and wastewater asset values will need to be developed. This will require an assignment of value between the two services, and may also require values being assigned to individual assets or networks/systems.

This is likely to be difficult if the objective is to not distort the current levels of price. For example, assigning 'too much' value to wastewater might lead to increases in wastewater prices and a corresponding fall in water supply charges. While this will not generate excessive returns, it could lead to perverse and unintended outcomes. It may therefore be necessary to back calculate values for each, using existing prices or at least use sensitivity testing to examine various approaches. Councils themselves (or Distribution Businesses) might be well placed in the first instance to propose a split that does not materially impact on prices.

6.3 Future capex

As set out above, the valuation (and consequently the RAB) incorporated assumptions about future capital expenditure, subsidies, contributed assets and infrastructure charges. If the value of each Distribution Business' opening asset based is to be referenced to this valuation, to assess the starting point for considering future capital expenditure, including the extent to which existing prices were expected to recover future capex.

[88] For example, the connecting pipeline between Logan and Brisbane, owned by those respective councils, and which services the Water Grid Manager.

6.4 Infrastructure charges

The Department of Infrastructure and Planning has published guidance on inclusions and exclusions for infrastructure charges for selected councils in Queensland.[89] It is notable that many of the costs to be incorporated into infrastructure charges now relate to bulk water supply assets, whose costs are recovered through bulk water charges to councils (and later the Distribution Businesses). Table 24 below provides a summary of the inclusions and how they relate to Distribution Businesses and bulk supply assets.

Table 24. Infrastructure charges – water supply

Inclusion for infrastructure charges	Relates to Distribution Business	Relates to bulk supply assets
Water treatment and recycling facilities	Limited to any recycling facilities	Water treatment assets and Western Corridor Recycled Water Project owned by bulk supply entities, with asset costs included in bulk water charges.
Water sources including dams, bores, desalination facilities	No.	These assets for part of the grid bulk supply assets, and costs included in bulk water charges.
Pump stations	Limited to pumps within the distribution system.	Major pump stations usually associated with bulk storage, treatment and pipeline infrastructure which are included in bulk water charges to councils.
Telemetry stations	Yes, in relation to the distribution system.	Telemetry assets also exist as part of bulk supply system.
Reservoirs and other storage facilities	Yes, in relation to the distribution system.	The bulk supply system also includes some reservoirs and storages – for example held by LinkWater and Seqwater.
Trunk mains and associated fittings (including dual reticulation)	Yes, in relation to the distribution system.	Bulk transport assets, such as major pipelines, are owned by LinkWater and form part of the bulk water charge. Some councils also own bulk transport infrastructure that provides services to the WGM, with the costs incorporated into bulk water charges.
Fire fighting devices	Yes.	It is not known if any such devices are installed on bulk supply assets.

We also note that the review of planning and development arrangements (refer Chapter 2) contemplate a later review of infrastructure charging arrangements.

The interrelationship between infrastructure charges and ongoing water supply and sewerage/trade waste tariffs also warrants further attention. Not only do the two sets of charges appear to be unrelated, but may also be set on a different basis (eg degree of cost reflectiveness and postage stamp pricing) and use different underlying assumptions (eg discount rate and asset value)

[89] Queensland Department of Infrastructure and Planning. *Priority Infrastructure Planning. Standard infrastructure charges schedule.* November, 2008.

Ideally, infrastructure charges would be set to recover the shortfall between the net present value (NPV) of the marginal cost of the expansion and the NPV of revenue growth generated.

The treatment of future augmentation expenditure also warrants attention, particularly in relation to contributed assets and regulatory asset base, as does the treatment of infrastructure charge revenue in single years. For example, infrastructure constructed by developers and transferred to council is clearly a contributed asset, while infrastructure charges themselves are also a form of contribution to future costs of 'trunk' infrastructure.

It may also be necessary to scrutinise the capital and other expenditure included in infrastructure charges, to ensure they are not also included in costs to be recovered from ongoing tariffs.

There are also risks in relation to the under or over recovery of trunk augmentations funded through infrastructure charges. This issue has been considered in the draft guidelines for infrastructure charges by the Department of Infrastructure and Planning:[90]

> The establishment cost for infrastructure should be estimated based on the best available knowledge at the time.
>
> There will be variations between estimates of infrastructure costs at the planning stage compared with the actual costs at the time of supply. Often this will balance out.
>
> It is important that local governments continually monitor differences between estimated costs and actual costs. Where persistent over recovery is evident, measures must be taken to recalculate the charge rates based on more accurate estimates of cost. If persistent under recovery is occurring, a similar process may be undertaken to ensure that the full cost of infrastructure is being recovered.
>
> The local government must not retrospectively recover any under recovery from users who have already paid. Equally, if the estimated costs are higher than the actual costs, the local government may retain the balance to use in the same infrastructure network.

[90] Department of Infrastructure and Planning. *IPA Infrastructure Guideline 2/08 – Infrastructure charges schedule*. Working draft, December (2008). P21

This suggests that local governments bear the risk of under recovery, although it is not clear whether any under recovery could be made up in ongoing charges. This would be a consideration for any future transition of infrastructure charges into a more formal regulatory framework, integrated with ongoing user charges.

Finally, it is worthy to note that growth from new development is not the only driver of augmentation. For example, an intensification of trade waste allowed to discharge to the sewer could, in theory, also trigger a process upgrade at the relevant wastewater treatment plant. Infrastructure charges do not seem to be able to deal with this situation as they are focussed on expansion of the urban footprint or service area, although councils may currently be managing this issue through restricting or capping trade waste access.

6.5 Other revenues

Many councils provide ancillary services or generate other revenues from their water and wastewater assets. These include connections and disconnections, meter inspections and testing, and laboratory services.

Others sell effluent and recycled water and derive an additional revenue source. Brisbane and Ipswich also provide wastewater to the Western Corridor Recycled Water Project.

Revenues and costs for these services need to be considered alongside the maximum allowable revenues for water or wastewater assets as a whole.[91]

For recycled water and wastewater sales, there is now significant regulatory precedent on this issue (eg IPART).[92]

6.6 Efficient costs

One aspect of determining excessive pricing is to consider whether current prices would be excessive in an environment of efficient costs. While a cost efficiency review is beyond the scope of this report, it is worthy to note that, for each business:

- there will be significant start-up and transition costs;

[91] Of course the key issue is whether the cost of these services is included in the cost base for MAR or not, and if not, how common costs should be allocated to those activities and MAR reduced accordingly. We have not examined the contestable elements of these services for this report, although this may be possible in the future.

[92] Independent Pricing and Regulatory Tribunal. *Pricing Arrangements for Recycled Water and Sewer Mining. Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council* (September, 2006).

- there may be legacy issues that impede efficient outcomes in the short-term, including any imposed conditions for staff transfer to the entity, location of offices and depots, use of back-room services etc;
- some of these legacy issues impeding efficiency could be externally imposed (eg by State Government legislation) or owner-imposed;
- it would be reasonable to expect economies of scale to be achieved for some (but not all) cost aspects, and there may be opportunities for the businesses to share resources, back-office functions or jointly procure some items;
- there are likely to be a range of new cost imposts for each business from the implementation of SEQ reforms and associated regulation – for example, for drinking water safety and asset management;
- the scope of activities may be different than under council ownership. Some activities previously considered part of the water and wastewater business may be retained with council, and the business may also face additional activities not previously carried out.

The Water Services Association of Australia (WSAA) has compiled cost data for water businesses in Australia, including for Brisbane, Gold Coast, Ipswich and Logan. Data was compiled on combined water and sewerage operating costs per property. While caution is required in using such comparisons, the WSAA data ranked Brisbane and Gold Coast 3rd and 5th highest respectively out of 11 providers with over 100,000 connections, and Ipswich and Logan 6th and 7th highest out of 8 providers with between 50,000 and 100,000 connections.[93]

It is difficult to draw any conclusions from these comparisons, and it is not intended that this data suggests anything about the efficiency of these businesses. However, it is worthwhile to recognise that the WSAA has for some time published this information, which may be a useful reference point going forward in understanding the changes in operating costs arising from the new Distribution Businesses.

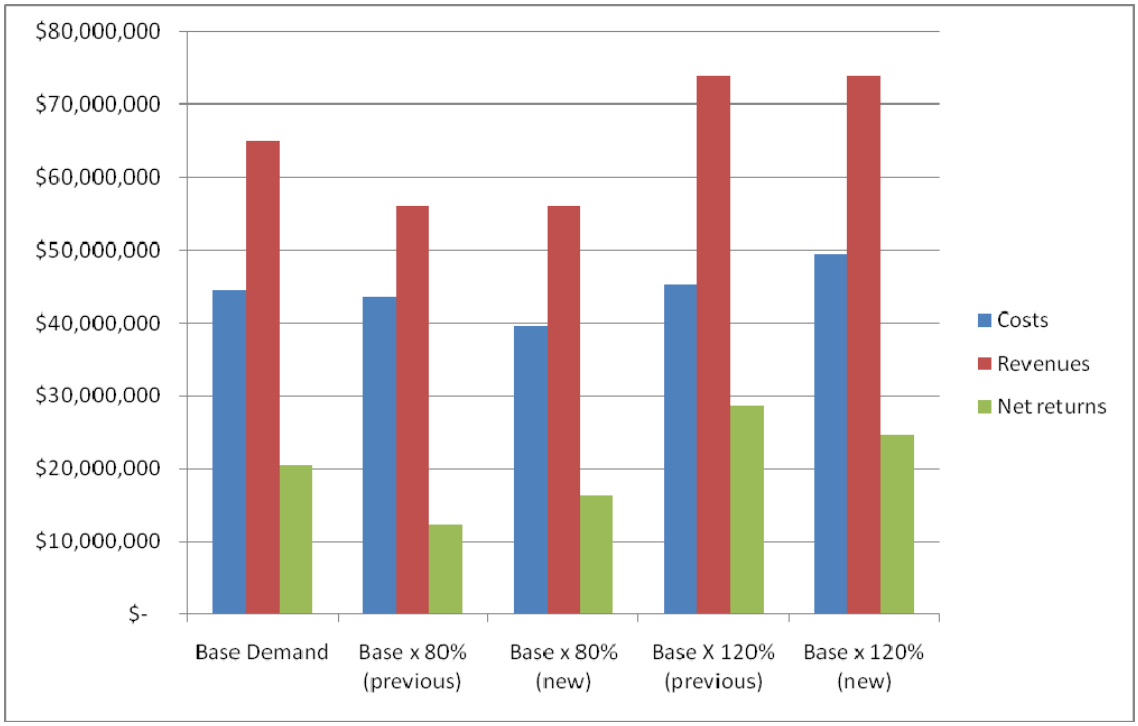
6.7 Volume risk

Water and wastewater businesses typically face a cost structure that is predominantly fixed.

[93] Water Services Association of Australia. National Performance Report. 2007-2008. Urban Water Utilities. pp77-79.

However, as a result of the asset transfers and current bulk water price tariffs, councils no longer have a very different cost structure as bulk water costs are charged on a volumetric basis. Hence, the consequences of volume risk for the Distribution Businesses are much lower than under the previous regime[94]. As a result, the returns of the new Distribution Businesses can be expected to be less volatile at least in respect of the exposure to uncertain demand. Figure 25 below provides an illustrative example, comparing a base level of demand and returns against higher (120% of base case) and lower (80% of base case) demand scenarios.[95]

Figure 25. Indicative volality in net returns – previous and new regime



This simple example shows that under the previous cost structure, a 20% change in demand would result in a 40% change in returns. Under the new structure, a 20% in demand results in an equivalent (20%) change in returns.[96]

[94] It is acknowledged that some councils previously purchased bulk water from other providers, such as SEQWater and Brisbane City Council, and that the tariff structures may have included a volumetric component.

[95] A simplifying assumption that fixed costs reduce from $40M to $20M as a result of the asset transfers, with this $20M difference recovered via a variable bulk water charge. Council's variable costs rise from $150/ML to $816/ML as a result based on demand of 30,000ML (revenue neutral). Also assumes 100,000 connections, an access fee of $200 per connection, and a consumption charge of $1.50/kL.

[96] This equivalence may be coincidental. The key point is the leverage from change in demand is far greater under the previous regime which had a greater proportion of fixed costs for councils.

This is an important consideration in light of the uncertainty about future demand as SEQ exits the previous drought and severe restrictions, and as the region faces significant growth into the future.

The scope for excessive returns arising from demand volatility will largely depend upon whether a price or revenue cap form of regulation applies into the future. However, the change in cost structure for the Distribution Businesses means they are less exposed to demand volatility than under the previous ownership model.

The Distribution Business will have very little, if any, ability to manage year-on-year volume risk from its existing asset base. For example, it does not control the demand management and restriction regime or industry's decisions about trade waste discharges. There is also demand volatility from uncontrollable factors such as rainfall, which will be exacerbated with the growth in water tanks in SEQ.

For wastewater services, the underlying cost structure has not changed, with costs predominantly fixed except for the variable costs of chemicals and electricity for treatment and pumping. The volume and composition of wastewater taken and treated is a function of residential water use behaviours (eg shorter showers, more efficient appliances etc) as well as changes to the water use practices of industrial and commercial customers, and the overall demand for the products and services they provide (to the extent this alters their production of wastewater).

It is also worthy to note that councils currently bear very little volume risk in their existing tariff structures, as most charges are fixed on a per property or per pedestal basis. Volume risk for trade waste charges would only arise to the extent that the variable charges (eg $/kL or $/kg) were set to recover fixed costs.

Volume risk in relation to growth could be mitigated through the current infrastructure charging regime, where the cost associated with this growth is meant to be recovered up front. However, this would not account for growth in demand from existing customers, who may change (increase of decrease) their water and wastewater requirements over time as opposed to year-on-year variation in demand.

Distribution Businesses may face situations where users look to bypass their networks or source services outside their service boundaries, and in these limited situations it may be in a position to manage demand risk through prudent discounting.

In summary, the Distribution Businesses have very little direct control over volume risk for water supply and wastewater. For water supply, the financial consequences of that risk are now different under the new institutional arrangements, given bulk water charges are charged to them on a volumetric basis. Hence their supplier, the WGM, bears volume risk in relation to bulk supply assets. For wastewater, tariffs are generally

fixed to create a revenue stream regardless of use of the network, although trade waste charges are an exception.

These would be relevant matters in considering whether a price cap or revenue cap form of regulation applied in the future.[97]

6.8 Cross subsidy

Even where whole of business returns are reasonable, it is possible that individual customers or groups of customers are paying excessive prices – that is prices that are significantly above those that could be sustained in a competitive market.

Cross-subsidies exist where the service provider receives less net benefits (including the charge levied) from the supply of the service than the incremental cost of supply, and another customer or group of customers pays more than the stand alone cost (or by-pass cost) of supplying these services. The vehicle for assessing whether or not this is the case is the stand alone cost (SAC) test.

While conceptually quite simple, there are significant issues associated with assembling suitable asset (particularly asset values[98] for the Distribution Businesses), cost and revenue data to enable a meaningful assessment of the SAC of supply.

A cross subsidy may exist even though all users pay the same rate – for example whether the cost of supplying individual or groups of users varies considerably. In this case, a cross subsidy might occur where that common price is above than the SAC for some users (eg in low cost areas), but below the incremental cost for others (eg in high cost areas).

We have commented on the scope for cross subsidy, and where it is most likely to occur under current charging arrangements.

The most likely instances of cross subsidy relate to infrastructure charges, where the sum of the infrastructure charges and the ongoing water charges could exceed SAC.

[97] For comparison, a revenue caps was adopted by IPART for Sydney Water, while price caps were adopted by the ESC for the three Melbourne retailers.

[98] For example, whether DORC or another valuation should be applied for this test. Where the KPMG valuation is adopted, assigning values to individual assets or systems will also be problematic in conducting this test.

6.8.1 Water services

Earlier chapters identified two relevant features of existing prices:

- the use of postage stamp pricing across service areas that are likely to have different costs; and
- differential prices between residential and industrial/commercial users.

Cross subsidies may exist where the costs of supply vary significantly between areas, and where postage stamp pricing is applied.

The first consideration is bulk water charges, which appear to be set by pre-amalgamation council area, although some may now have been set under new council boundaries. When the new Distribution Businesses form, the structure of bulk water charges may give rise to material differences in cost between service areas, during the period of price path transition. This would occur so long as these charges are set based on previous council boundaries, rather than aggregated at the entity level.

A second consideration is the cost differences between service areas or networks. For example, costs may be higher in isolated networks taking water from remote sources than areas with greater density. However, there is insufficient information to conclude whether these differences are large enough to generate cross subsidy.

There are of course other issues associated with postage stamp pricing, including the price signals for water use between discrete networks or service areas.

Higher prices for industrial and commercial users is not, of itself, evidence of cross subsidy. However, cross subsidy will occur where those price differentials result in costs to those users being above the SAC of supply, while at the same time allowing prices to residential or other users being below incremental cost. It is not possible to discern whether this is the case based on available information.

Nonetheless, the rationale for these price differentials warrants scrutiny. For example, discounting to the residential sector may be inefficient where they have the capacity to pay the 'non-discounted' charge. There may also be differences in service levels between the two sectors, although this is not obvious from the available information.

6.8.2 Wastewater services

Similar issues arise for wastewater services as for water supply.

The potential for cross subsidy arising from postage stamp sewerage and trade waste charges is likely to be greater than for water, given there are many more discrete wastewater systems and these are likely to have different levels of cost. However, it is not possible to discern instances where prices would exceed SAC.

Trade waste charges may give rise to cross subsidy concerns where they do not recover the incremental cost.. For example, one customer discharging waste with exceptionally high concentration or volume of contaminant may be imposing significant costs at the treatment plant. These incremental costs may include increased chemical and electricity costs, additional capital costs (eg installing additional processes), and bringing forward future process upgrades.

These concerned are heightened where:

- trade waste charges are not related to individual wastewater systems, as the cost impacts are likely to be different for each system; or
- for 'treatment intensive' trade wastes, charges are not set to reflect the cost impacts – for example where volumetric and/or contaminant load charging has not been adopted.

It is plausible that various councils who do not differentiate charges in this way (eg Gold Coast, Moreton Bay) have considered the profile of industries in their region, or otherwise control the quality of discharge through their connection policies, excluding enterprises that would generate high-cost wastes.

Some councils set lower sewerage prices to clubs, retirement villages etc, often at a substantial discount. This may not represent a cross subsidy where this is above the incremental cost of supply. However, this may not represent efficient pricing where it does not signal the long run marginal cost of supply. Furthermore, at least some of these users may have the capacity to pay the undiscounted price, thereby removing the need to set lower charges at the expense of other users. Discounts made to achieve a social outcome would ideally be done through transparent CSO mechanisms, which would be a matter for purchasers of CSO services (eg local or State governments).

6.8.3 Infrastructure charges

A cross subsidy may arise where the sum of the ongoing charges and the infrastructure charges paid by a user[99] are greater than SAC.

The relationship between infrastructure charges and ongoing prices is a significant issue for the regulatory arrangements going forward.

6.9 Other issues

There are a number of specific issues that may be relevant to the QCA in responding to the Direction Notice or its subsequent considerations.

6.9.1 Voluntary treatment plant upgrades

While discharges from treatment plants are governed by environmental conditions, we understand that several councils have previously upgraded treatment plants of their own accord to meet environmental outcomes over and above those required by discharge licenses. These upgrades have been part of the Healthy Waterways program.

> Since ... 2001 ..., significant effort and financial resources have been invested in upgrading wastewater treatment plants, particularly to reduce nitrogen loads. For example, 25 wastewater treatment plant upgrades were included in the SEQWQMS 2001 as commitments by Councils. By late 2005, 13 upgrades had been completed and 12 were in progress. Nitrogen loads from these sources have been reduced by approximately 40 percent, with a further 20-30 percent reduction expected as a result of initiatives then in progress …. [100]

To the extent that more upgrades occur into the future, the regulatory treatment of those upgrades will warrant consideration. The central issue will be the legitimacy of including such expenditure into the asset base, where it was at the owner's discretion rather than in response to a compliance requirement.

6.9.2 Unconnected properties

Many councils charge water supply and wastewater charges for vacant land or properties able to be, but not connected to the network. A slight discount often applies for these properties.

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[99] Via land purchase.

[100] South East Queensland Healthy Waterways Partnership. *Point Source Pollution Management Action Plan.* (December 2007). p15

One rationale for this is that those landholders have the option to connect, which of itself generates value and is likely to be reflected in land values. However, this would not be the case where the cost of connecting the property was already met by a developer (eg through constructing and gifting the local infrastructure)

The issue might then be whether the owners of those properties should contribute to the other costs of having a water supply available, but not used. However, an unconnected property would not appear to impose any of these costs on the network.

These charges levied to people who do not receive the service warrant further consideration when considering pricing into the future, and the basis of any such charges at least made transparent.[101]

6.9.3 Pricing differentials for different supply security

As mentioned in earlier chapters, the draft SEQWS has been set so that medium level restrictions apply upon defined drought triggers. These restrictions largely apply to the residential sector, in curtailing outdoor water use – a saving of 20% from the residential sector is expected. No additional savings from the non-residential sector are contemplated.

It could be argued that a price differential should apply between the two sectors to reflect the different reliability or security of supply for each. This would need to consider the nature of the permanent restrictions that are in place for each sector, as well as issues in quantifying the difference in reliability itself.

Importantly, these are not issues for prices from the Distribution Business, as it does not set nor control these restrictions and Levels of Service. Rather, this is an issue for bulk water charges. Hence there is not a strong case for distribution/retail aspect of water charges to differentiate between the sectors on account of this difference.

6.9.4 Discriminatory pricing in favour of councils

Councils are users of water, for example at parks and gardens and for council premises. A price monitoring and regulatory framework might need to be attentive to the potential for discounting to councils, as owners of the Distribution Business.

[101] It is possible that this practice has arisen from water and sewerage costs being historically recovered through council rates, levied on land.

6.9.5 Boundary issues

As set out in earlier chapters, there are no cross-connections in place across distribution business areas that relate to distribution infrastructure. This has meant that there are discrete supply areas, with their own prices. This does mean, however, that users near the boundary will pay different charges, although they are serviced by separate distribution systems.

6.9.6 Tariff structure and price signals

While Councils have adopted a two party tariff for water supply, we have not be able to discern the intended price signals arising from those tariffs, and whether they signal long run marginal costs (LRMC) in particular.

This is equally the case in relation to wastewater pricing. For example, while the level of trade waste charges, particularly those levied on a volumetric or contaminant load basis, would appear to respond to some of the key cost drivers, the level of those charges and the price signal may warrant further attention. These trade waste charges may only be set to reflect short-run marginal costs, or a blended average cost across all wastewater system, rather than LRMC for each individual system. The price signals from sewerage charges also warrants further consideration in relation to signaling LRMC.

7 Conclusion

The development of three new Distribution Entities in SEQ and the associated institutional, pricing and land use planning reforms presents a number of challenges for future prices oversight. This report has sought to highlight the major issues to assist the QCA consider these matters by providing an overview of the current and future conditions.

The demand and supply conditions for water and wastewater will be affected by the projected urban growth and expansion of the supply footprint in the region. This has implications for competition in servicing this growth into the future, as well as pricing implications (eg future infrastructure charges).

There is also potential rivalry at the product level, particularly for non-potable needs, from other water sources. The natural monopoly characteristics of the infrastructure suggest there are significant barriers to entry, although this may not be the case in limited situations at the micro level. At the wider level, urban growth is likely to require new wastewater systems that are separate from existing networks.

It is difficult to assess matters of excessive pricing and cross subsidy from available information, although there are a number of issues warranting further attention, including the relationship between infrastructure charges and existing prices, cost differences in supply areas amidst postage stamp prices, and the differential charges set for residential and non-residential users in some instances.

A Attachment 1. Summary of statutory definitions

This attachment provides a summary of the relevant definitions under relevant legislation.

A.1 Water activity

The *Water Act 2000* defines a water activity as:

> for a water authority, includes an activity for the following—
>
> (a) water conservation;
>
> (b) water supply;
>
> (c) irrigation;
>
> (d) drainage, including stormwater drainage;
>
> (e) flood prevention;
>
> (f) floodwater control;
>
> (g) underground water supply improvement or replenishment;
>
> (h) sewerage;
>
> (i) anything else dealing with water management.

A.2 Water supply and related terms

The *Water Act 2000* and the *Water Supply (Safety and Reliability) Act* define a water service as….

> (a) water harvesting or collection, including, for example, water storages, groundwater extraction or replenishment and river water extraction; or
>
> (b) the transmission of water; or
>
> (c) the reticulation of water; or
>
> (d) drainage, other than stormwater drainage; or
>
> (e) water treatment or recycling.

A retail water service is defined in both Acts as:

> a reticulated water service in a service area for a water service. The term does not include—
>
> (a) an irrigation service or a bulk water service in any area; or
>
> (b) the supply of recycled water in any area.

The *Water Supply (Safety and Reliability) Act* defines a drinking water service as:

> a water service that is—
>
> (a) the treatment, transmission or reticulation of water for supply as drinking water; or
>
> (b) water collection in a water storage, if the water in the storage—
>
> (i) includes recycled water; and
>
> (ii) is used to augment a drinking water supply.

The *Queensland Competition Authority Act* defines a water supply activity as:

> carrying on a business the main purpose of which is supplying water to another person (other than supplying bottled or containerised water), whether or not supplying the water includes water delivery services or water storage.[102]

The Grid Market Rules give the same meaning to Water Supply as the *Water Supply (Safety and Reliability) Act*.

A.3 Wastewater services and related terms

The *Water Act* and *Water Supply (Safety and Reliability) Act* define a sewerage service as:

> (a) sewage treatment; or
>
> (b) the collection and transmission of sewage through infrastructure; or
>
> (c) the disposal of sewage or effluent.

The *Water Supply (Safety and Reliability) Act* defines trade waste as:

[102] This definition applies for Part 5A, divisions 3 and 4. Refer to sections 170ZMA and 170ZQA. Otherwise, the Act defines a water supply activity as carrying on a business, the main purpose of which is: water storage, including water storage for another person; or water delivery services; or supplying water to another person, other than supplying bottled or containerised water.

water-borne waste from business, trade or manufacturing premises, other than—

(a) waste that is a prohibited substance; or

(b) human waste; or

(c) stormwater.

The *Act* also defined wastewater as:

the spent or used water generated on premises from industrial, commercial or manufacturing activities, or animal husbandry activities prescribed under a regulation, other than spent or used water generated from an agricultural activity or a mining activity or petroleum activity.

B Attachment 2. Permanent conservation measures

This attachment summarises the proposed permanent conservation measures for residential and non-residential users in SEQ.

Summary of Permanent Water Conservation Measures – Residential Premises

Category of Water Use	Restriction
Domestic consumption	Where a customer is notified that the volume of water usage exceeds 1,200 litres per day, the service provider must: (a) determine the allowable limit, that is 1,200 litres per day or 300 litres per resident per day [unless an exemption has been made] and (b) issue a notice each time the limit is exceeded. Where two consecutive excessive water use notices have been issued, an outdoor water ban will be imposed and the service provider must provide the customer with details of the ban.
Established lawns and gardens	Watering prohibited on Mondays and between 10.00am and 4.00pm on any other day. At allowable times watering may be conducted with; buckets, watering cans, approved watering devices, hand-held hoses, efficient irrigation systems or efficient sprinklers.
New lawns and gardens	Watering is not permitted between 10.00am and 4.00pm on any day. At allowable times watering may be conducted with; buckets, watering cans, approved watering devices, hand-held hoses, efficient irrigation systems, efficient sprinklers.
New and renovated swimming pools and spas	No restrictions apply to the initial filling of new and renovated pools and spas.
Existing swimming pools and spas	Topping up is only permitted where; (a) a rainwater tank or downpipe rainwater diverter is connected to the pool or spa, and (b) all available water from the tank or diverter is used before town water is used, and (c) the premises has three of four of the following; a pool cover, all showerheads and kitchen and bathroom taps are water efficient, all toilets are water efficient, all water machines are water efficient. Alternatively to (a), (b) and (c), (d) the pool or spa is accredited as a SPASA EcoPool.
Water play pools and water toys	Use of water from the reticulated supply is only allowed where the pool or toy is able to re-circulate water or the pool or toy has a maximum capacity of 500 litres.
Outdoor showers	No restrictions apply.
Washing of vehicles	Washing only to be undertaken using a hand held hose or high pressure cleaning unit or bucket.
Washing of external surfaces of a building or paved surfaces	No washing of buildings to be undertaken, except where a bucket, hand held hose or high-pressure water cleaning unit is used. Washing of paved surfaces is not permitted. A limited exception exists for reasonable actions taken to address significant soiling of paved surfaces or to prevent material risks.
Animal husbandry	Water from the reticulated supply may be used only where a rainwater storage facility is installed on the premises and all water from the storage facility is used before water from the reticulated supply is used, and that the water is used for animal welfare and survival including cleaning pens with a high pressure unit.
Care of pets	Water is not to be used for pet care except for welfare and survival purposes including drinking water, washing pets, cleaning pens with a high-pressure unit.
Building and construction	Water must be used with a bucket, hand held hose or high pressure unit.
Fountains and ponds	Water from the reticulated supply may not be used for the filling or topping up of fountains or ponds, except where the fountain or pond either recirculates water or uses a maximum of 200 litres per week.
Fish ponds, frog ponds or outdoor aquariums	Filling and topping up is only permitted where the pond or aquarium either recirculates water or uses a maximum of 200 litres per week.

Category of Water Use	Restriction
Lakes, dams and other water storage facilities	Topping up or filling of lakes, dams and other water storage facilities is prohibited. The restriction does not apply to water which is used for washing or cleaning purposes and then collected in detention ponds.
Rainwater tanks and rainwater storage facilities	Water from the reticulated supply system is not to be used, either directly or indirectly for the filling, partial filling or topping up of rainwater tanks and storage facilities. Except where; (a) topping up occurs using a trickle top-up system installed by a licensed plumber for the purposes of supplying water to toilet cisterns or washing machine cold taps, or (b) the premises is not connected to the reticulated supply system and consequently depends upon the rainwater storage facility as the primary source of water supply for the premises.

Source: Queensland Water Commission, *Permanent Water Conservation Measures: Residential and Non-Residential*.

Summary of Permanent Water Conservation Measures – Non-Residential

Category of Water Use	Restriction
Where consumption is 10ML/year or greater	Water usage must be in accordance with a WEMP, and the customer must provide written reports to the service provider. Additionally where an individual item of equipment, process or facility consumes a significant proportion of the total volume of water used on the premises a sub-meter must be installed by a licensed plumber and written records must be kept.
Established lawns and gardens	Generally: watering is prohibited on Mondays and between 10.00am and 4.00pm on any other day. At allowable times watering must be conducted with; buckets, watering cans, approved watering devices, hand-held hoses, efficient irrigation systems or efficient sprinklers. Where the area to be irrigated exceeds 350 square metres, water is not to be used except where it is in accordance with a WEMP, or where a copy of an irrigation water efficiency management plan which is certified by a Certified Irrigation Professional has been submitted to the service provider and a sub-meter has been installed.
New lawns and gardens	Watering is not permitted between 10.00am and 4.00pm on any day. Watering may be conducted with; buckets, watering cans, approved watering devices, hand-held hoses, efficient irrigation systems or efficient sprinklers. Premises with an area to be irrigated of more than 350 square metres may not use town water, except where a WEMP or irrigation water efficiency management plan is in place or the service provider has given written approval to submit one at a later date. A sub-meter must also be in place.
New and renovated swimming pools and spas	No restriction applies to the initial filling of new pools and spas.
Public water play facilities	Topping up of public water play facilities which do not recirculate water is prohibited. Facilities which do recirculate water may only be topped up where the express approval of the service provider has been obtained.
Public swimming pools	Topping up of public swimming pools which do not recirculate water is prohibited. Facilities which do recirculate water may only be topped up where it is in accordance with a WEMP.
Outdoor showers	Use of water from the reticulated supply system is permitted for a period of 6 months, after that date water is not permitted to be used for outdoor showers, other than safety showers, except where the shower is fitted with a water efficient showerhead and an automatic water cut off device.
Existing swimming pools and spas	Topping up is only permitted where; a written log in the correct form is kept, and action is taken to remedy any leaks, and a rainwater tank or downpipe diverter is attached, and all available water from the tank is used to fill the spa first, and all showerhead on the premises are water efficient and a clear-view screen is installed on the backwash outlet line of the pool or spa, and a sub-meter is installed by a licensed plumber.

Category of Water Use	Restriction
Washing of vehicles by a person other than a mobile commercial operator	Only permitted where a bucket, hand held hose or high pressure cleaning unit is used.
Washing of vehicles by a mobile commercial operator	Water from the reticulated supply is not to be used unless the washing is undertaken in accordance with the Vehicle Washing Guidelines.
Washing of rental and chauffeured vehicles	Water from the reticulated supply is not to be used unless the washing is undertaken in accordance with the Vehicle Washing Guidelines.
Vehicle washing in a fixed and permanent location (includes vehicle service centres and permanent bay/self-serve/automatic car washes.)	Washing of vehicles should only be undertaken where the washing is conducted in accordance with the Vehicle Washing Guidelines, and a sub-meter is installed to a washing facility that consumes a significant proportion of the water used on the premises, and in some cases written records of weekly meter readings and the number of cars washed will be required to be kept.
Motor vehicle dealerships	Water from the reticulated supply is not to be used for the washing of vehicles unless the washing is conducted by a mobile commercial operator in accordance with the Vehicle Washing Guidelines.
Washing or other application of water to the external surfaces of a building or paved surfaces	Washing of buildings only to be undertaken where a bucket, hand held hose or high-pressure water cleaning unit is used. Washing of paved surfaces is not permitted. A limited exception exists for reasonable actions taken to address significant soiling or to prevent material risks. A mobile commercial operator must act in accordance with the External Building Washing (Mobile Operator) Best Practice Guidelines.
Animal husbandry	A rainwater storage facility must be installed on the premises and all water from the storage facility must be used before water from the reticulated supply is used. Water should be used for animal welfare and survival including cleaning pens with a high pressure unit.
Care of pets	Water should only be used for welfare and survival purposes including drinking water, washing pets, and cleaning pens with a high-pressure unit. Where a commercial operator or a mobile commercial operator is engaged to wash a pet or clean pet pens and enclosures water must be used in accordance with the Pet Washing Best Practice Guidelines.
Building construction	Either a bucket, hand held hose or high pressure leaning unit must be used and the site must be attended at all times when water is used on the site.
Land development, subdivisional activities, State and Local Government roads and associated roadwork activities	Water from the reticulated supply not to be used for land development and subdivisional activities, or for roads or roadwork activity, except where the written approval of the service provider has been obtained.
Active playing surfaces	Watering must be undertaken in accordance with the Active Playing Surface Guidelines. All premises other than Childcare centres must register the surface with the water provider, have a water meter installed, and display a service provider approved sign.
Nurseries, turf farms and market gardens	Watering of commercial stock and production areas must be conducted in accordance with a WEMP and a service provider approved sign must be displayed.
Kitchen / bathroom / laundry and ablution	Where annual consumption is 1ML or greater water must not be used for kitchen / bathroom / laundry and ablution facilities. Unless it can be demonstrated that the internal fittings are water efficient, or the water is used in accordance with a WEMP.
Urinal systems	Water from the reticulated supply must only be used for urinal systems which are water efficient.
Cooling towers	Use may only occur which is in accordance with a WEMP (or a WEMP has been submitted or there is written approval). Where a cooling tower consumes a significant proportion of the water used a sub-meter must be installed.
Parks and reserves	Water from the reticulated system is not permitted to be used for the watering of parks and reserves.
Fountains and ponds	Water from the reticulated supply may not be used for the filling or topping up of fountains or ponds, except where the fountain or pond either recirculates water or

Category of Water Use	Restriction
	uses a maximum of 200 litres per week.
Fish ponds, frog ponds or outdoor aquariums	Filling and topping up is only permitted where the pond or aquarium either recirculates water or uses a maximum of 200 litres per week.
Lakes, dams and other water storage facilities	Topping up or filling of lakes, dams and other water storage facilities is prohibited. The restriction does not apply to water which is used for washing or cleaning purposes and then collected in detention ponds.
Rainwater tanks and rainwater storage facilities	Water from the reticulated supply system is not to be used, either directly or indirectly for the filling, partial filling or topping up of rainwater tanks and storage facilities. Except where; (a) topping up occurs using a trickle top-up system installed by a licensed plumber for the purposes of supplying water to toilet cisterns or washing machine cold taps, or (b) the premises is not connected to the reticulated supply system and consequently depends upon the rainwater storage facility as the primary source of water supply for the premises.
Premises used to provide traveller accommodation	Information about water conservation measures, provided on the QWC website, must be clearly displayed in every bathroom within an accommodation unit on the premises and every shared bathing facility or ablution block on the premises.

Source: Queensland Water Commission, *Permanent Water Conservation Measures: Residential and Non-Residential*.

C Attachment 3. Current prices

This attachment provides additional publicly available information on water and wastewater prices for the ten water providers (councils) in SEQ. The councils are grouped according to the new water Distribution Businesses (DB): central, north and south. Where information is available, the following points have been addressed:

- general pricing principles;
- water supply charges;
- trade waste charges;
- sewerage charges;
- infrastructure charges; and
- other charges.

C.1 Councils included in DB Central

The first group of councils comprises the Brisbane City Council, Scenic Rim Regional Council, Ipswich City Council, Somerset Regional Council, and the Lockyer Valley Regional Council. These are going to form DB Central.

Brisbane City Council

General pricing principles

No publicly available information on general pricing principles could be found.

Water supply charges

The following water supply charges have been provided by the QCA assuming water consumption of 250 kL (Table 1). The equivalent consumption charge per kL is $0.62.

Table 1 Water charges, Brisbane City Council, 2009/10

Charge	$
Bulk water charge (250 kL)	305.00
Access charge	155.24
Consumption charge (250 kL)	155.00

Charge	$
Total	**615.24**

Source: Information provided by QCA.

This charge is consistent with the tier 1 consumption charge as set out by the Brisbane City Council in its charges schedule for residential customers. Table 2 shows that the Council applies a three-tier inclining block tariff.

Table 2 Residential water charges 2009/10

Charge	$
Water Access Charge	38.81 per quarter
Water Consumption	
- Tier 1	0.62 per kL
- Tier 2	0.66 per kL
- Tier 3	1.17 per kL
State Government Bulk Water	1.22 per kL

Source: Brisbane City Council (2009), Residential water and sewerage charges 2009/10. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/residential_water_and_sewerage_charges_09_10.pdf

Table 3 provides an explanation of the tiered pricing system and shows the consumption thresholds which trigger the different prices.

Table 3 Water consumption thresholds

Consumption tiers	Consumption threshold	
	90-day period	Yearly
Tier 1	Up to 63 kL	Up to 255 kL
Tier 2	Between 64 kL and 76 kL	Between 256 kL and 310 kL
Tier 3	Above 76 kL	Above 310 kL

Source: Brisbane City Council (2009), Residential water and sewerage charges 2009/10. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/residential_water_and_sewerage_charges_09_10.pdf

Water consumption charges for Community Title Scheme properties (which can include townhouses, flats and villas), are determined by each property owner's contribution schedule lot entitlement percentage.

The water consumption rates for business customers are slightly different from the residential customer charges as can be seen in Table 4.

Table 4 Business water charges 2009/10

Charge	$
Water Access Charge	38.81 per quarter
Water Consumption	
- Tier 1	0.74 per kL
- Tier 2	0.84 per kL
- Tier 3	1.23 per kL

Charge	$
State Government Bulk Water	1.22 per kL

Source: Brisbane City Council (2009), Business water, sewerage and trade waste charges 2009/10. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/business_water_sewerage_trade_waste_charges_quarterly_factsheet.pdf

Table 5 provides an explanation of the tiered pricing system.

Table 5 Water consumption thresholds

Consumption tiers	Consumption threshold	
	90-day period	Yearly
Tier 1	Up to 49 kL	Up to 200 kL
Tier 2	Between 50 kL and 74 kL	Between 201 kL and 300 kL
Tier 3	Above 74 kL	Above 300 kL

Source: Brisbane City Council (2009), Business water, sewerage and trade waste charges 2009/10. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/business_water_sewerage_trade_waste_charges_quarterly_factsheet.pdf

Trade waste charges

Table 6 provides an overview on trade waste charges for 2009/10 set by the Brisbane City Council.

Table 6 Trade waste charges, 2009/10

Trade waste category	Each	Charges
Category A		
Minor trader (e.g. small food outlet or workshop) with no water meter or trade waste flow that is hard to measure.	Quarter	$77.00
Category B		
Discharge greater than 67 kL/quarter (e.g. larger restaurant, lower impact food processor). Assumed domestic strength.	Kilolitre	$1.15
Category C		
Discharge greater than 87 kL/quarter (e.g. anodising plant, electroplater, low impact manufacturers). Assumed less than domestic strength.	Kilolitre	$0.88
Category D		
Large discharge and high strength waste > 20 kg/day BOD (biochemical oxygen demand) (e.g. major manufacturer, brewery, cannery, synthetic polymers, and abattoirs). Fully assessed for quality by routine sampling and chemical testing.	Kilolitre	$0.76
Flow	Kilogram	$0.74
BOD5 or TOC (standard rate)	Kilogram	$0.57
BOD5 or TOC (discounted rate)	Kilogram	$0.69
Suspended solids	Kilogram	$1.70
Nitrogen as Total Kjeldahl Nitrogen	Kilogram	$1.35
Phosphorous as Total Phosphorous		

Source: Brisbane City Council (2009), Business water, sewerage and trade waste charges. Quarterly business customers. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/business_water_sewerage_trade_waste_charges_quarterly_factsheet.pdf

Sewerage and pedestal charges

The sewerage access charges for residential and business customers for 2009/10 are $104.34 per quarter. Business customers can choose to be charged monthly. A special sewerage access charge of $38.81 per quarter applies to private roadways, carparks and mini storage units on Community Title Scheme properties. Only residential customers are only charged for access.

In addition to the sewerage access charge which includes the charge for the first pedestal, business and non-residential customers are charged per additional pedestal. Pedestal charges depend on the type of premises and the number of pedestals. The more pedestals, the higher the charge per pedestal. Table 7 provides an overview of the 2009/10 charges.

Table 7 Pedestal charges

Type of premises	2009/10 Pedestal charges		
	2-8 peds (each)	9-12 peds (each)	Over 12 peds (each)
Multi-residential land, hotels and motels	$91.85 per qtr ($367.40 p.a.)	$115.20 per qtr ($460.80 p.a.)	$141.91 per qtr ($567.64 p.a.)
Retirement villages and child care centres	$43.31 per qtr ($173.24 p.a.)	$54.06 per qtr ($216.24 p.a.)	$66.66 per qtr ($266.64 p.a.)
Convalescent homes, hospitals, schools, kindergartens, community protection centres, churches, welfare homes (excl. land used for the purpose of universities or tertiary education)	$43.31 per qtr ($173.24 p.a.)	$54.06 per qtr ($216.24 p.a.)	$66.66 per qtr ($266.64 p.a.)
Not-for-profit sporting and community organisations (excl. land used for a commercial purpose)	$43.31 per qtr ($173.24 p.a.)	$54.06 per qtr ($216.24 p.a.)	$66.66 per qtr ($266.64 p.a.)
Other	$110.87 per qtr ($443.48 p.a.)	$138.85 per qtr ($555.40 p.a.)	$170.70 per qtr ($683.12 p.a.)

Source: Brisbane City Council (2009), Business water, sewerage and trade waste charges. Quarterly business customers. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/business_water_sewerage_trade_waste_charges_quarterly_factsheet.pdf

Infrastructure charges

There exist planning scheme (PSP) policies for water supply infrastructure contributions and sewerage infrastructure contributions.

The water supply PSP sets contributions for the trunk water supply network that services the future population including:[103]

[103] BCC (2009), Water supply infrastructure contributions planning scheme policy, Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib807/after_development_approval_water_supply_infrastructure_contributions_psp.pdf

- bulk supply and treatment, reservoirs, pump stations, booster stations, and pipes;
- augmentation or replacement of the existing network (where capacity has been exceeded as a result of ultimate flows).

The total infrastructure contribution for the water supply infrastructure network is expressed in infrastructure contribution units (ICUs) and charged per equivalent tenement. For the financial year 2009/10 an ICU has been valued at $1.84. There are currently 26 contribution areas with North Pine having the lowest total infrastructure contribution of 3909 ICUs and Ferny Grove having the highest total contribution of 7120 ICUs. The infrastructure contribution is then calculated as follows:

- identify catchment within which the site falls;
- identify corresponding infrastructure contribution rate for the catchment (ICUs/equivalent tenement (ET));
- identify the number of development units (no. of dwellings or m^2 GFA) and the ET conversion rate;
- identify the number of hectares and minimum ET Density by City Plan Area Classification;
- identify the value of an ICU;
- calculate the infrastructure contribution using provided formulas;
- deduct any applicable credits or offsets.

Assuming one development unit and a detached dwelling, the infrastructure contribution charge in the North Pine Contribution Area would be $7,192.56 and for Ferny Grove $13,100.80. The total infrastructure contribution consists of the following components:[104]

- local distribution;
- shared distribution;
- bulk transport;
- bulk supply and treatment; and

[104] BCC (2009), Water supply infrastructure contributions planning scheme policy, Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib807/after_development_approval_water_supply_infrastructure_contributions_psp.pdf

- preparation change.

The sewerage infrastructure contributions PSP sets contributions for the trunk sewerage network that services the future population and includes:[105]

- use of treatment and reticulation (transport) infrastructure such as treatment plants, gravity mains, rising mains and pump stations;
- augmentation or replacement of the existing network (as a result of new demand); and
- new gravity mains, rising mains, pump stations and maintenance holes.

As above, an ICU has a value of $1.84 in 2009/10. The infrastructure contribution is then calculated following similar steps as above.

Other charges

The Brisbane City Council's business water, sewerage and trade waste charges schedule sets out the below other charges:[106]

- alternate source water charges;
- deeming rates;
- water meter testing;
- special disposal charges; and
- metered standpipes to draw water from fire hydrants.

Scenic Rim Regional Council

General pricing principles

No information could be found on general pricing principles applied by the Scenic Rim Regional Council.

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[105] BCC (2009), Sewerage infrastructure contributions planning scheme policy, Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib807/after_development_approval_sewerage_infrastructure_contributions_psp.pdf.

[106] Brisbane City Council (2009), Business water, sewerage and trade waste charges. Quarterly business customers. Link: http://www.brisbane.qld.gov.au/bccwr/_assets/main/lib821/business_water_sewerage_trade_waste_charges_quarterly_factsheet.pdf

Water supply charges

The QCA provided the following water supply charges (Table 8) for the Scenic Rim Regional Council based on 250 kL water consumption.

Table 8 Water charges, Scenic Rim Regional Council, 2009/10

Charge	$
Bulk water charge (250 kL)	380.00
Access charge	343.00
Consumption charge (250 kL)	192.50
Total	**915.50**

Source: Information provided by QCA.

The above consumption charge per 250 kL implies that the water consumption charge is $0.77 per kL.

The Council's fees and charges schedule sets out the following charges (Table 9) for water services related to the supply of water.

Table 9 Water services, 2009/10

Water services	Charges ($)
Water services in declared water service areas	
- 20mm domestic service – install meter only	$675.00
- 20mm domestic service – install infrastructure & water meter	$1,100.00
- 25mm	Quote
- 32mm	Quote
- 40mm	Quote
- 50mm	Quote
- Larger diameters and bypass meters	Quote
- Disconnection fee	$190.00
Water meters	
- Testing of meters	$142.00
- Flow and pressure test for water meter	$80.00
- Change of water service and/or meter location to property	Quote
Standpipe sales	
- Per 1,000 litres	$3.50 per 1,000 litres
Standpipe sales – water tags	
- Deposit	$20.00
Miscellaneous	
- Location of underground services	$70.00 plus $1/minute on site with a minimum charge for 15 min.
- Callout to damaged underground services	$150.00 plus $2/minute/person plus plant, equipment and materials.

Source: Scenic Rim Regional Council, 2009/10 fees and charges schedule, Link: http://www.scenicrim.qld.gov.au/aboutCouncil/budget_09-19/Fees%20&%20Charges%202009_2010%20v9.pdf

Trade waste charges

It appears that neither of the former councils, Boonah nor Beaudesert, had any formal Council policies with respect to trade wastes. However, they both were in the process of developing policies. There is no current information available on progress of a policy.

Sewerage charges

Table 10 provides an overview of charges for sewerage services.

Table 10 Sewerage services

Sewerage services	Charge ($)
All connections	$175.00
Disconnections	$175.00
Sealing of sewer by Council following disconnection of a building (additional to disconnection fee)	$332.00
Effluent sales – per ML (subject to contractual agreement on capital & recurrent costs)	$10.00
Discharges to sewage treatment plant (Beaudesert only)	
- Septic tank pump-outs (per 1,000 litres or part thereof)	$138.00
- Holding tank effluent (per 1,000 litres or part thereof)	$15.00
- Grease trap wastes	Prohibited
- Chemical toilet wastes	Prohibited
Miscellaneous	
- Location of underground services	$70.00 plus $1/minute on site with a minimum charge for 15 min.
- Callout to damaged underground services	$150.00 plus $2/minute/person plus plant, equipment and materials.

Source: Scenic Rim Regional Council, 2009/10 fees and charges schedule, Link: http://www.scenicrim.qld.gov.au/aboutCouncil/budget_09-19/Fees%20&%20Charges%202009_2010%20v9.pdf

Infrastructure charges

Scenic Rim Regional Council imposes the following infrastructure (headworks) charges for water supplies and sewerage schemes.[107]

Water supplies:

- For all development applications (per equivalent tenement):
  - Beaudesert area $6,665.00;

[107] Scenic Rim Regional Council, 2009/10 fees and charges schedule. Link: http://www.scenicrim.qld.gov.au/aboutCouncil/budget_09-19/Fees%20&%20Charges%202009_2010%20v9.pdf

- Boonah area $3,643.00;
- Ipswich area $5,132.00;
- Non-residential rate $6,159.00.

Sewerage schemes:

- For all development applications (per equivalent tenement):
  - Beaudesert area: $5,081.00;
  - Boonah area: $3,048.00;
  - Ipswich area: n/a.

A water connection fee in areas capable of being supplied, but not in a declared water service area, is provided on application.

Other charges

No other charges related to water supply or wastewater could be found.

Ipswich City Council

General pricing principles

No information could be found on general pricing principles applied by the Ipswich City Council.

Water supply charges

The QCA provided the following water supply charges in Table 11 based on 250 kL water consumption per annum in the area of the Ipswich City Council.

Table 11 Water charges, Ipswich City Council, 2009/10

Charge	$
Bulk water charge (250 kL)	289.00
Access charge	309.00
Consumption charge (250 kL)	188.50
Total	**786.50**

Source: Information provided by QCA.

The above water charges imply a consumption charge (excl. bulk water) of $0.754 per kL.

The Ipswich City Council additionally charges the following water supply services (Table 12).

Table 12 Water supply services, 2009/10

Water supply services	Charge $
Water connection	
- full connection installation by developer (supply of meter, admin./inspection – by Council)	$210.00
- full 20mm residential service	$830.00
- all other service connections	By quote
- termination of any service other than 20mm	By quote
- termination of 20mm water service	$365.00
Water meters	
- supply and fit meter to any other service	By quote
- re-locate 20mm above ground meter to below ground (residential services)	$300.00
- re-locate above ground meter to below ground (other services)	By quote
- re-location of meters to alternative location under 1 meter	$300.00
- re-location of meters to alternative location over 1 meter	By quote
Water mains	
- pressure/flow test from a hydrant at site (per test)	$345.00
- location of mains at site (without excavation) per visit	$160.00
Supply of water from potable water filling stations	
- supply of water to commercial potable water carriers	$2.35
- supply of water to residential customers	$1.95
- Security deposit (bank guarantee)	
I-tag	$11.00
- Replacement fee for lost or damaged I-tag	$55.00
Other charges	
- special reading of water meter – per assessment	$55.00
- testing of water meters:	
- 20mm and 25mm	$250.00
- 32mm and 40mm	$325.00
- 50mm and 80mm	$445.00
- 100mm and larger	By quote

Source: Ipswich City Council (2009), 2009/10 fees and charges, Link: http://www.ipswich.qld.gov.au/documents/corporate/fees_&_charges_2009-2010_fees_and_charges.pdf

Trade waste charges

The Ipswich City Council's 2009/10 fees and charges schedule sets out the following with respect to liquid trade waste charges.

Application fees and annual permit fees for trade waste are provided in Table 13.

Table 13 Application and annual permit fees for trade wastes, 2009/10

	Application Fee	Annual Permit Fee
Category 1	$125.00	$295.00
Category 2	$125.00	$405.00

	Application Fee	Annual Permit Fee
Category 3	$240.00	$660.00

Source: Ipswich City Council (2009), 2009/10 fees and charges, Link: http://www.ipswich.qld.gov.au/documents/corporate/fees_&_charges_2009-2010_fees_and_charges.pdf

Other charges in relation to liquid trade wastes include:[108]

- licensed carriers of septic waste of a standard acceptable to Council as outlined in its Trade Waste Policy at an approved site will be per volume of tanker:
  - per kL: $55.00
  - base charge: $60.00
- licensed carriers of septic waste pump outs from short term holding tanks approved by Council's delegated Trade Waste Officer will be per volume of tanker:
  - per kL: $3.00
  - base charge: $60.00
- licensed carriers of "other" waste of a standard approved by Council's delegated Trade Waste Officer will be charged on volume, strength and associated costs arising from the approval
  - by quote
- Trade Waste Officer's charges per hour: $125.00
- after hours callout charge for Treatment Plant Operators
  - minimum callout weekdays 4 hours - per hour: $100.00
  - minimum callout weekends 4.5 hours – per hour : $100.00
- administration of non-standard trade waste services: by quote
- fee for testing of stormwater diversion systems $470.00
- administration costs for recovery of fee for testing of stormwater diversion systems (late payment fee). $140.00

For specific trade wastes the following charges apply (Table 14).

[108] Ipswich City Council (2009), 2009/10 fees and charges, Link: http://www.ipswich.qld.gov.au/documents/corporate/fees_&_charges_2009-2010_fees_and_charges.pdf

Table 14 Trade waste charges

Description	Std (Limit (mg/L))	Per kg
COD	600	$0.98
Suspended solids	300	$1.16
Sulphate	500	$1.50
Total Nitrogen	60	$2.12
Total Phosphorous	15	$6.50

Source: Ipswich City Council, Liquid trade waste fees and charges, Link: http://www.ipswichwater.com.au/documents/2009.07.13_fs_tw_fees_and_charges_web.pdf

Sewerage charges

The Council's schedule on fees and charges does not distinguish between liquid trade waste and sewerage charges. The section on sewerage only deals with liquid trade wastes as described in the previous section.

In WSAA's "National Performance Report 2007-08", the fixed sewerage charges are described as pedestal based (single for residential) and amount to $455.

The Council charges for the following additional services related to sewerage:[109]

- to disconnect house drain from sewer;
- provision of additional connection to existing sewer; and
- clearing blocked private drains.

Infrastructure charges

The Ipswich City Council charges developer contributions for infrastructure headworks. The following unit charges are multipliers to be used when calculating contributions.

- water supply infrastructure (per unit): $1.1383;
- sewerage infrastructure (per unit): $1.1383.

From the Ipswich Planning Scheme it is not clear whether the infrastructure charges are imposed per equivalent population or per equivalent tenement.

Other charges

[109] Ipswich City Council (2009), 2009/10 fees and charges, Link: http://www.ipswich.qld.gov.au/documents/corporate/fees_&_charges_2009-2010_fees_and_charges.pdf

The Ipswich City Council offers recycled water to non-residential commercial and industrial customers in a number of supply zones. Further, the Council offers tinkered recycled water supply to approved water carriers from tanker filling stations at Bundamba and Rosewood Wastewater Centres.[110]

Somerset Regional Council

General pricing principles

No information could be found on general pricing principles applied by the Somerset Regional Council.

Water supply charges

The QCA provided the information in Table 15 on water charges based on 250 kL in the area of the Somerset Regional Council.

Table 15 Water charges, Somerset Regional Council, 2009/10

Charge	$
Bulk water charge (250 kL)	447.50
Access charge	322.00
Consumption charge (250 kL)	57.25
Total	**826.75**

Source: Information provided by QCA.

Water access charges are charged per water connection per property or per vacant allotment where water is available. In 2009/10 the annual charge is $322.00.

Water consumption charges differ between:

- for each kL between 0 and 150 kL used in a six month period: $2.01; and
- for each kL used in excess of 150 kL during a six month period: $2.29.

Trade waste charges

No information on trade waste charges could be found.

Sewerage charges

[110] Ipswich City Council, http://www.ipswichwater.com.au/non_residential/recycled_water_services/overview/

The Somerset Regional Council imposes the following sewerage charges in Table 16.

Table 16 Sewerage charges

Region		Annual charge ($)	Charge per half year ($)	Discount applicable
Lowood, Fernvale, Esk, Toogoolawah	Per single residence, flat, one pedestal premise	568.00	284.00	15%
	Per vacant allotment where sewerage is available	284.00	142.00	15%
Kilcoy	Per single residence, flat, one pedestal premise	411.00	205.50	15%
	Per vacant allotment where sewerage is available	363.00	181.50	15%

Source: Somerset Regional Council, Guide to 2009.10 rates and charges, Link: http://www.somerset.qld.gov.au/council/documents/Charges%202009-2010_29jun09.pdf

Other sewerage-related charges by the Council include:

- sewerage household on-site treatment systems (incl. septic HSTP in non-sewered areas)
  - permit for installation of facility including approval and inspection
  - assessment of design, alterations to plumbing and drainage;
  - single inspection – minor alterations;
  - approval and inspections of a grey water facility; and
  - annual fee for registering and monitoring of a grey water facility.
- sewerage inspection fees:
  - sewer connection application with house drainage approval and inspection;
  - single inspection – minor alterations;
  - assessment of design, alterations to plumbing and drainage;
  - sewer disconnection fee;
  - installation of jump up (sewerage connection) at depth of less than 1.5 metres (within declared sewerage area);
  - installation of jump up (sewerage connection) at depth of 1.5 metres or greater (within declared sewerage area);
  - provision of sewerage service outside of declared area; and
  - provision of constructed plans (sewer diagrams, pipeline diagrams, house drains etc.). Copying and faxing inclusive.

The following is a list of services that are charged by the Council and which are described as "Waste Management Work." These include:

- discharge of sewage holding tanks waste to Council Sewerage Treatment plant ($21.00 per kL);
- discharge of grease traps and septic tank pump outs to Council Sewerage Treatment Plant ($35.00 per kL);
- additional cost for disposal of septage or grease trap waste into Council's sewerage system after hours ($151.00 per kL);
- application for approval to conduct waste management work (renewable annually) ($499.00); and
- sale of waste Management Strategic Plan ($26.00 per copy).

Infrastructure charges

The Council charges the following water and sewerage headworks contributions for different districts (Table 17). From the Council's schedule of charges it is not clear whether they are imposed per equivalent tenement or per equivalent population.

Table 17 Water and sewerage headworks contributions

District	Charge
Water headworks contributions	
Linville	$2,904.00
Kilcoy and Jimna	$6,181.00
Somerset Dam	$3,619.00
Toogoolawah	$2,904.00
Esk	$2,904.00
Fernvale	$3,235.00
Lowood	$3,422.00
Lowood to Litzows Road (excl. blocks fronting Litzows Road)	$3,422.00
Litzows Road to Zabels Road (incl. all blocks fronting Litzows Road and excl. blocks fronting Zabels Road)	$4,075.00
Zabels Road to Minden (incl. all blocks fronting Zabels Road)	$4,335.00
elsewhere off Lowood-Minden main (incl. Lyons Bridge to Mt. Tarampa)	$4,335.00
Sewerage headworks contribution	
Toogoolawah	$2,904.00
Kilcoy	$5,392.00

District	Charge
Esk	$2,904.00
Fernvale	$3,619.00
Lowood	$3,619.00

Source: Somerset Regional Council, Schedule of charges.

Other charges

The following is a list of other services offered and charged by the Council:[111]

- lease of standpipe
  - lease of water standpipe per annum (by agreement);
  - water standpipe lease charges per kL; and
  - water standpipe coin operated per kL.
- supply of water for human consumption
  - licence fee to cart water for human consumption/per vehicle;
  - licence fee-human consumption/per private water supply source excluding licensed water producers under State legislation; and
  - special analysis of private water supply source used for commercial production.
- water meter testing
  - testing of water meter for accuracy (refundable if meter inaccurate) – by Brisbane Water or other outside authority;
  - testing of water meter for accuracy (refundable if meter inaccurate) - by Council.
- water sample – private
  - chemical and/or bacteriological samples.
- water supplied from Tarong pipeline
  - application fee;
  - charge for each new connection;
  - charge for water used up to 1,000 kL (fixed charge);
  - excess water charge per kL (after 1,000 kL).

[111] Somerset Regional Council, Schedule of charges, Link: http://www.somerset.qld.gov.au/council/documents/ScheduleofchargesAPPROVED03_28sep09x.pdf

- water undertakings
  - provision of Water Service Fee (20mm connection/within declared water area);
  - provision of Water Service Fee (other than standard 20mm connection/within declared water area);
  - provision of water service outside of declared water area

Finally, there are household water plumbing approval and inspection fees, which are compulsory for all buildings within the region. These include:

- single inspection fee;
- reinspection fee
- other service connection fee; and
- disconnection fees.

Lockyer Valley Regional Council

General pricing principles

No information could be found on general pricing principles applied by the Lockyer Valley Regional Council.

Water supply charges

The QCA provided the following water supply charges (Table 18) based on 250 kL of water consumption. It can be seen that the access charges are the same for Gatton and Laidley, but different for Forest Hill. The consumption charges are the same for Laidley and Forest Hill, but different for Gatton. QCA data (not shown in table) shows that the Lockyer Valley Regional Council applies a (two-tier) inclining block tariff with the first 300 kL charged at lower rates than anything above 300 kL.

Table 18 Water charges, Lockyer Valley Regional Council, 2008/09

	Lockyer Valley Regional Council		
	Gatton	Laidley	Forest Hill
	$	$	$
Bulk water charge (250 kL)	353.50	586.25	586.25
Access charge	405.00	405.00	360.00
Consumption	51.50	325.00	325.00

	Lockyer Valley Regional Council		
charge (250 kL)			
Total	**810.00**	**1316.25**	**1271.25**

Note: all information is 2008/09 except bulk water charges (2009/10).
Source: Information provided by QCA.

The data from the above table implies that the per kL charges for the Gatton are $0.21 and for Laidley and Forest Hill $1.3.

In the regulatory fees and charges schedule for 2009/10, LVRC states the following water supply service connection charges (Table 19):

Table 19 LVRC, Service connections charges

Service connections	Charge
20mm water service connection	$620.00
Testing of water meters (by request)	$75.00
Disconnection of service at meter (by request)	$135.00
Disconnection of service at main (by request)	$540.00
Connection of disconnected service (by request)	$620.00
25mm up to 20.00m in length	$925.00
32mm up to 20m in length	$1,350.00
40mm up to 20m in length	$1,650.00
50mm up to 20m in length	$2,000.00
100mm	$POA

Source: Lockyer Valley, Regulatory charges, Link: http://www.lockyervalley.qld.gov.au/Documents/LVRC%20Regulatory%20Fees%20&%20Charges%202009.2010.pdf

In LVRC's commercial fees and charges schedule for 2009/10 it describes the following water supply services (Table 20).

Table 20 LVRC, Water supply charges

Water supply	Charge
Sale of water from standpipe	
- per kL or part thereof	3.00
- water taken by registered water carters (per kL)	3.00
- bore water standpipe sales (per kL)	2.00
- bond (standpipe key)	200.00
Water meter reading	
- water meter reading	60.00
- urgent water meter reading	100.00
Water efficiency assessor rate (per hour) – min. charge of 1 hour applies	80.00

Source: Lockyer Valley, Commercial charges, Link: http://www.lockyervalley.qld.gov.au/GENERALFEESbrnbspnbspCHARGES/tabid/154/Default.aspx

Trade waste charges

The Lockyer Valley Council's wastewater treatment plants are not designed to take trade waste. Businesses that generate such waste are advised to contact the council's Engineering Services Department to ensure waste is legally disposed.[112]

Sewerage charges

Sewerage charges are levied per tenement for domestic properties, per pedestal for commercial properties and per parcel for vacant land.[113]

The Council offers sewerage connection and disconnections services to the Council sewer main as well as to properties. Prices for these services are on application.[114]

Another service by the Council is the discharge of septic tanks and sullage effluent to the Council's wastewater treatment plant. Prices for these services are as follows:[115]

- per kL sullage effluent: $25.00; and
- per kL septic tank pump out: $30.00.

Infrastructure charges

The Lockyer Valley Regional Council imposes the following water and sewer infrastructure charges for the Gatton and the Laidley planning scheme area.

From the publicly available Council information it is not clear whether the infrastructure charges are imposed per equivalent tenement or by equivalent population.

Average water infrastructure charges for the Gatton planning scheme area are presented in Table 21.

Table 21 Water infrastructure charges

Planning Scheme Area	Fees ($)
Gatton	
Gatton – fuel pressure	4,200
Gatton constant flow	4,000

[112] Lockyer Valley Regional Council, Link: http://www.lockyervalley.qld.gov.au/AZSERVICES/TRADEWASTE/tabid/148/Default.aspx

[113] http://www.lockyervalley.qld.gov.au/documents/ratesbrochure0809.pdf

[114] LVRC, Commercial fees and charges 2009/10 and Regulatory fees and charges 2009/10. Link: http://www.lockyervalley.qld.gov.au/GENERALFEESbrnbspnbspCHARGES/tabid/154/Default.aspx

[115] LVRC, Commercial fees and charges 2009/10. Link: http://www.lockyervalley.qld.gov.au/GENERALFEESbrnbspnbspCHARGES/tabid/154/Default.aspx

Planning Scheme Area	Fees ($)
Placid Hills	4,200
Grantham	4,200
Helidon	4,200
Postmans Ridge	4,200
Withcott	4,200
Table Top	4,200
Woodlands Rise Development Area	5,010
All areas – existing property contributing to infrastructure	1,700
Laidley	
Glenore Grove East to Laidley-Esk Shire Boundary	1,200
Glenore Grove West to Laidley-Gatton Boundary	1,600
Glenore Grove to Laidley Town – North of Warrego Highway	1,450
Glenore Grove to Laidley Town – South of Warrego Highway	2,050
West Laidley Region	2,600
QM Properties Region	1,890
Laidley Town	3,500
Forest Hill Town	1,470

Source: Lockyer Valley, Regulatory charges, Link: http://www.lockyervalley.qld.gov.au/Documents/LVRC%20Regulatory%20Fees%20&%20Charges%202009.2010.pdf

Sewer infrastructure charges are presented in Table 22, the Council charges as follows:

Table 22 Sewer infrastructure charges

Planning scheme area	Fees ($)
Gatton	
Gatton	1,750
Helidon	1,750
Woodlands Rise Development Area	2,700
Laidley	
Laidley Town	1,200
Forest Hill Town	1,200

Source: Lockyer Valley, Regulatory charges, Link: http://www.lockyervalley.qld.gov.au/Documents/LVRC%20Regulatory%20Fees%20&%20Charges%202009.2010.pdf

Other charges

Other water services provided and charged by LVRC include the installation of meters to multi-unit developments. The Council is currently also developing a project that

aims at recycling water from the wastewater treatment plants at Gatton and Helidon for agricultural use.[116]

C.2 Councils included in DB North

The second group of councils which will be the stakeholder of the second water business in SEQ are the Sunshine Coast Regional Council and the Moreton Bay Regional Council.

Sunshine Coast Regional Council

General pricing principles

No information could be found on general pricing principles applied by the Sunshine Coast Regional Council.

Water supply charges

The QCA provided the below water supply charges (Table 23) based on 250 kL water consumption. The same rates apply for Noosa & Maroochy and Caloundra.

Table 23 Water charges, Sunshine Coast Regional Council, 2009/10

	Sunshine Coast Regional Council	
	Noosa and Maroochy	Caloundra
	$	$
Bulk water charge (250 kL)	212.00	212.00
Access charge	211.00	211.00
Consumption charge (250 kL)	125.50	125.50
Total	**524.23**	**524.23**

Source: Information provided by QCA.

The Sunshine Coast Regional Council applies a two-tiered system of charging for all water consumption. Water to be billed on the January 2010 rate notice is calculated as follows:[117]

[116] Lockyer Valley Regional Council, http://www.lockyervalley.qld.gov.au/AZSERVICES/WATER/RECYCLING/tabid/150/Default.aspx

[117] Sunshine Coast Regional Council, Rate information, Link: http://www.sunshinecoast.qld.gov.au/sitePage.cfm?code=rates-info

- for the first 600 litres per day the charge will be $1.35 per kilolitre; and
- for any use in excess of 600 litres per day the charge will be $1.80 per kilolitre.

The two different data sources on consumption charges are inconsistent. The consumption charge in the above table suggests $0.40 per kL which is significantly below the consumption charge of $1.35 quoted by the Sunshine Coast Regional Council, which is likely to include the QWC bulk water charge. However, adding the QWC bulk water charge of $0.85 for the Sunshine Coast Regional Council yields a charge of $1.25, which is still below the charge provided by the Sunshine Coast Regional Council.

The Sunshine Coast Regional Council fees and charges schedule for 2009/10 describes 27 different service fees (plus 6 service fees that apply in Maroochy). In addition there are five application fees, one publication/photocopies fee and a bond (for the use of hydrants).

Trade waste charges

Businesses that generate trade waste are required to complete an application for approval to discharge trade waste to sewer and lodge it with Sunshine Coast Water.

The following application fees with respect to trade waste apply:

- application fee: $196.00;
- change of permit details: $57.40.

The Council also applies the following service fee:

- inspection charge (non scheduled 1 hour): $93.70.

Table 24 provides an overview on the specific trade waste charges, some only apply to Caloundra and Noosa or Maroochy or only Noosa.

Table 24 Trade Waste Charges

Trade Waste	Charge $
Quality/quantity charges – tankered domestic wastewater per kL	$1.90
Inadequately sized arrestor	
- high impact	$842.00
- medium impact	$421.00
- low impact	$316.00
Quality/quantity charges – chemical oxygen demand per kg	$0.60
Quality/quantity charges – suspended solids per kg above 300mg	$1.00
Quality/quantity charges – total nitrogen per kg	$1.60

Trade Waste	Charge $
Quality/quantity charges – total oil and grease per kg	$1.00
Quality/quantity charges – total phosphorous per kg	$4.10
Trade Waste Search (property and/or business) 1.5 hours	$127.00
Quality/quantity charges – chemical toilets per kL	$17.80
Quality/quantity charges – tankered non domestic wastewater per kL	$9.30
Quality/quantity charges – landfill leachate per kL	$1.90
Quality/quantity charges – septic tank / on site waste treatment systems per kL	$32.60
Caloundra and Noosa	
Quantity charge – per kL in excess of 500 kL	$0.60
Maroochy	
Quality/quantity charges – wastewater quantity charge per kL (as per waste water charge)	$1.90

Source: Sunshine Coast Regional Council (2009), General fees and charges 2009/10, Link: http://www.sunshinecoast.qld.gov.au/addfiles/documents/budget/fees_and_charges_2009_10.pdf

In Caloundra the following permit fees apply:[118]

- category 1 (volume greater than 50kL/annum, but less than 250kL/annum;
- category 1A (volume less than 50kL/annum);
- category 2 (volume greater than 250kL/annum);
- category 3; and
- garbage grinders (depending on kWh).

In Noosa the following permit fees apply:[119]

- category 1;
- category 2 (+ % of quantity charge as per trade waste environment management plan);
- category 3;
- no arrestor – charge where 1,000 litre arrestor required – per annum; and
- no arrestor – charge where 550 litre arrestor required – per annum.

[118] Sunshine Coast Regional Council (2009), General fees and charges 2009/10, Link: http://www.sunshinecoast.qld.gov.au/addfiles/documents/budget/fees_and_charges_2009_10.pdf

[119] Sunshine Coast Regional Council (2009), General fees and charges 2009/10, Link: http://www.sunshinecoast.qld.gov.au/addfiles/documents/budget/fees_and_charges_2009_10.pdf

Sewerage charges

The following wastewater services are provided by Sunshine Coast Regional Council (Table 25).

Table 25 Wastewater services and charges, 2009/10

Product/Service	Type	Charge $
Standard connection charge (locate and mark position of existing junction)	Service fee	$70.60
Excavating and locating existing connection by Sunshine Coast Water Services on site	Service fee	$421.00
New junction / connection construction	Service fee	POA
Raising/lowering of sewerage manhole	Service fee	POA
Building over or adjacent to sewer – application (per application)	Service fee	$445.00
Wastewater / infrastructure (as constructed sewer plans) A2 and A1 maps	Service fee	$38.80
Wastewater / infrastructure maps (as constructed sewer plans) – A4 and A3 maps	Service fee	$24.60
Wastewater disconnection – minimum charge – greater than 1.5m deep	Application fee	POA
Wastewater disconnection – minimum charge – up to 1.5m deep	Application fee	POA
Clearing/inspection of sewer blockage after hours (cost per hour) – charge only charged if blockage found to be owner's responsibility	Service fee	$305.00
Clearing/inspection of sewer blockage during business hours (cost per hour) – charge only charged if blockage found to be owner's responsibility	Service fee	$195.00
CCTV inspection of house drains following non-council cleaning after hours (cost per hour)	Service fee	$305.00
CCTV inspection of house drains following non-council cleaning during business hours (cost per hour)	Service fee	$195.00
Maroochy		
Review of drawings, site inspection and preparation of as constructed drawings for internal subdivisional wastewater works – Charges are calculated on total number of lots on survey plan less park and balance lots.	Service fee	$284.00
Review of drawings, site inspection and preparation of as constructed drawings for external subdivisional wastewater and wastewater extensions and relocations. – Charge per metre of sewer construction – first 500 metres ($337.00)	Service fee	$10.80

Product/Service	Type	Charge $
Review of drawings, site inspection and preparation of as constructed drawings for external subdivisional wastewater and wastewater extensions and relocations. – Charge per metre of sewer construction – after 500 metres	Service fee	$6.20
On/Off maintenance re-inspection – applicable after 2 failed inspections	Service fee	$183.00
Review of wastewater network analyses	Service fee	$232.00

Source: Sunshine Coast Regional Council (2009), General fees and charges 2009/10, Link: http://www.sunshinecoast.qld.gov.au/addfiles/documents/budget/fees_and_charges_2009_10.pdf

Infrastructure charges

No publicly available information on infrastructure charges could be found.

Other charges

Other water and wastewater-related charges imposed by SCRC include:[120]

- special water meter read (service fee): $40.00;
- waste water services - waste water disposal (holding tanks): $59.00;
- disposal of oily waste via recycling tanks at Eumundi Road Landfill per litre: $0.17; and
- disposal of grease trap waste via recycling tanks at Eumundi Road Landfill per litre: $0.12.

It is also possible to buy water from standpipes and temporary water meters.

Moreton Bay Regional Council

General pricing principles [121]

Water charges reflect the full cost of providing a water reticulation network and are based on an access fee and a tiered volumetric charge for water consumed. In setting

[120] Sunshine Coast Regional Council (2009), General fees and charges 2009/10, Link: http://www.sunshinecoast.qld.gov.au/addfiles/documents/budget/fees_and_charges_2009_10.pdf

[121] Moreton Bay Regional Council, 2009-10 Budget policies and schedule, Link: http://www.moretonbay.qld.gov.au/council.aspx?id=51471

water charges, the Council has regard to achieving a rate of return consistent with the national competition policy principles in the medium term.

Water charges comprise an access charge predominately based on the fixed cost of providing water infrastructure and a consumption charge predominately based on variable costs. The consumption charge is tiered to promote water conservation and provide a closer alignment between the cost of providing the services and individual user charges. The tiered consumption charge reflects the additional demands placed on water infrastructure by higher water consumption.

Sewerage charges will reflect the full cost of providing a sewerage reticulation network that, where possible, manages the treatment of sewage to a high quality recyclable product that contributes to water conservation strategies. In setting sewerage charges, Council will have regard to achieving a rate of return consistent with national competition policy principles in the medium term.

Water supply charges

The QCA provided the below water supply charges (Table 26) based on 250 kL water consumption. It can be seen that the access charges differ between the three districts, whereas the consumption charges are the same.

Table 26 Water charges, Moreton Bay Regional Council, 2009/10

	Moreton Bay Regional Council		
	Caboolture	Redcliffe	Pine Rivers
	$	$	$
Bulk water charge (250 kL)	340.00	340.00	340.00
Access charge	276.00	180.00	316.00
Consumption charge (250 kL)	35.00	35.00	35.00
Total	**651.00**	**555.00**	**691.00**

Source: Information provided by QCA.

Water consumption charges applying to the three districts within the Moreton Bay Regional Council are provided in Table 27.

Table 27 Water consumption charges, Moreton Bay RC, 2009/10

Criteria	Charge
Tier 1 (0 to 70 kL)	$1.50
Tier 2 (71 kL to 90 kL)	$2.04
Tier 3 (91 kL plus)	$2.40

Source: Moreton Bay Regional Council, Policies and Schedules 2009/10

As mentioned, the access charges for the three districts differ in the council area. Table 28 provides more information on the differences.

Table 28 Water access charges, Moreton Bay Regional Council, 2009/10

Criteria	Charge
Caboolture	
Connected private residence or unoccupied land connected to Council's water supply; homes; home units; flats or motel units (each); residences attached to businesses and each separate home on one (1) parcel of land connected to Council water supply	$276.00
Commercial/business property connected to Council's water supply; including Building Units or Group Title Shops	$276.00
Where water charges have been levied against an owner of a Lot in a Community Unit, Building Unit or Group Title Plan, the owner shall be charged for consumption in accordance with the Revenue Policy. The charge shall be calculated according to the Contribution Schedule of the Lot.	
Other properties not specifically designed above which are connected to Council's water supply, e.g. schools; churches; halls/lodges; community organisations.	$276.00
Vacant land to which Council will supply a water connection upon receipt of a standard connection fee – for each separate parcel of land provided that in the instance of a dwelling and one adjacent vacant parcel of land which is zoned Residential A owned by one and the same person then this vacant land charge shall not apply to this particular vacant parcel of land.	$276.00

Pine Rivers

Consumer Class	Description	Charge
Vacant Land	- land to which water is available, but not connected.	$316.00
Domestic A	- domestic premises with a 15mm, 20mm or 25mm supply line with individual meters - domestic community title premises with individual meters - flats with individual meters - all other domestic premises with individual meters not mentioned in the other consumer classes	$316.00
Domestic B	- any domestic premises with a shared meter	$306.00
Industrial/Commercial	- retirement villages - shops, including cafes, bakehouses, butcher shops, garages and service stations - bowling greens and clubhouses - hotels - industrial structures and warehouses - utilities, including Energex, Powerlink, Telstra, Sewerage/Water Pump Station etc. - Council facilities - Schools, preschools, kindergartens and child care centres - Offices - Any other building or structure of a commercial or industrial nature not specified above	Refer Industrial / Commercial Access Charges Below

Criteria		Charge
Community	- Public halls (incl. Council owned and operated) - Place of worship - Parks (incl. sports fields) - Reserves - Land occupied by Not for Profit Community Organisations - Road medians and verges	$316.00
Dedicated Fire Hose Reel Service (Industrial / Commercial)	Dedicated Fire Hose Reel Service providing water for the sole purpose of fire fighting equipment, which service is not for domestic use.	$0.00
Recycle	Supply of recycled water through a dedicated recycle water access point.	$0.00
Redcliffe		
For all premises connected to the Council's water supply other than multi-occupation premises		$180.00
For multi-occupation premises connected to the Council's water supply, the charge multiplied by the occupancy multiplier for the premises. OR for each lot in a community titles scheme under the Body Corporate and Community Management Act 1997 where there are no individual meters for lots in the scheme.		$180.00
For each parcel of vacant or occupied land which is not connected to the Council's Water Supply system but is the Council's service area under the Water Act 2000, (but which does not have a metered property service).		$180.00
Dedicated Fire Hose Reel Service providing water for the sole purpose of fire fighting equipment, which service is not for domestic use.		$0.00
Supply of recycled water through a dedicated recycle water access point		$0.00

Source: Moreton Bay Regional Council, Policies and Schedules 2009/10

Additional information on industrial/commercial access charges for the Pine River district is provided in Table 29. For this consumer class the access charge will be determined based on the meter size servicing the property.

Table 29 Industrial/commercial access charges, Pine River district, 2008/09

Meter size	Capacity factor	Access charge
20mm	1	$316.00
25mm	1	$316.00
32mm	2.56	$808.96
40mm	4	$1,264.00
50mm	6.25	$1,975.00
65mm	11	$3,476.00
80mm	16	$5,056.00
100mm	25	$7,900.00
150mm	56.25	$17,775.00
200mm	100	$31,600.00
225mm	126.5625	$39,993.75

Meter size	Capacity factor	Access charge
250mm	156.25	$49,375.00
300mm	225	$71,100.00

Source: Moreton Bay Regional Council, Policies and Schedules 2009/10

Trade waste charges [122]

The Moreton Bay Regional Council charges the following trade waste charges (Table 30).

Table 30 Trade waste charges, Moreton Bay Regional Council

Description	District	Charge
Category 3 BODs (for agreements commencing prior to 1 July 2004) – per kg	Caboolture	$1.85
Category 3 CODs (for agreements commencing after 1 July 2004) – per kg	Caboolture	$0.55
Category 3 Sulphate (for agreements commencing prior to 1 July 2004) – per kg	Caboolture	$0.40
Category 3 Sulphate where > 2000 mg/L (for agreements commencing after 1 July 2004) – per kg	Caboolture	$0.50
Category 3 Sulphate where less than 2000 mg/L (for agreements commencing after 1 July 2004) – per kg	Caboolture	$0.40
Category 3 Total Nitrogen (for agreements commencing after 1 July 2004) – per kg	Caboolture	$2.10
Category 3 Total Phosphorous (for agreements commencing after 1 July 2004) – per kg	Caboolture	$6.90
Category 3 Total Volume Fee (for agreements commencing after 1 July 2004) - per kL	Caboolture	$0.65
Category 3 Total Volume Fee (for agreements commencing prior to 1 July 2004) – per kL	Caboolture	$0.65
Category 3 TSS (NFR) (for agreements commencing after 1 July 2004) – per kg	Caboolture	$0.65
Category 3 TSS (NFR) (for agreements commencing prior 1 July 2004) – per kg	Caboolture	$0.50
Category A Volumetric Fee - commercial generators with a grease trap – per kL	Caboolture	$1.95
Category A Volumetric Fee reduced fee – Minimum charge of $35 per invoice. To qualify for the reduced fee, Category A generators need to provide evidence when requested of regular grease trap emptying in accordance with the conditions of the permit. – per kL	Caboolture	$1.45
Category B Volumetric Fee (industry with mineral oil removal devices) – per kL	Caboolture	$1.05
Category C Volumetric Fee (commercial generators silt/lint traps, hairdressers, car washes, photographic studies and pool-backwash) - per kL	Caboolture	$1.15
BOD – per kg	Pine Rivers	$1.65
COD – per kg	Pine Rivers	$1.45
Trade waste flow – TW1 0 – 140kl – billed 6 monthly – per kL	Pine Rivers	$1.15
Trade waste flow – TW2 140kl – 180 kL – per kL	Pine Rivers	$1.95
Trade waste flow – TW3 > 180 kL - per kL	Pine Rivers	$2.40
Sulphate (SO4)/Sulphite (SO2) - per kg	Pine Rivers	$1.55

[122] Moreton Bay Regional Council, Link: http://www.moretonbay.qld.gov.au/FeeSearchResults.aspx?l1=3747&l2=3783&l3=3785

Description	District	Charge
Suspended solids – per kg	Pine Rivers	$1.35
Total dissolved salts – per kg	Pine Rivers	$1.15
Total Kjeldahl Nitrogen – per kg	Pine Rivers	$1.15
Total oil & grease – per kL	Pine Rivers	$0.90
Total phosphorous – per kg	Pine Rivers	$0.90
Trade waste volumetric fee – category 2 – per kL	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 CODs – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 sulphate greater than 2000 mg per L – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 sulphate less than 2000 mg per L – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 total nitrogen – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 total phosphorous – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 TSS (NFR) – per kg	Redcliffe	Annual registration charge applies
Trade waste volumetric fee – category 3 volume fee – per kL	Redcliffe	Annual registration charge applies

Source: Moreton Bay Regional Council, Link: http://www.moretonbay.qld.gov.au/FeeSearchResults.aspx?l1=3747&l2=3783&l3=3785

Table 31 provides an overview of charges related to trade waste permits:

Table 31 Trade waste permits

Description	District	Charge
Application for category 1 trade waste permit (per application)	Redcliffe	$57.50
Application for category 2 trade waste permit (per application)	Redcliffe	$173.00
Application for category 3 trade water permit (per application)	Redcliffe	$311.50
Renewal fee for category 1 trade waste permit (per annum)	Redcliffe	$115.50
Renewal fee for category 2 trade waste permit (per annum)	Redcliffe	$231.00
Renewal fee for category 3 trade waste permit (per annum)	Redcliffe	$346.50
Trade waste annual sewer discharge permit fee – category 3 (for agreements commencing after 1 July 2004) (per annum)	Caboolture	$136.00
Trade waste annual sewer discharge permit fee – category 3 (for agreements commencing prior to 1 July 2004) (per annum)	Caboolture	$136.00
Trade waste annual sewer discharge permit fee – category A, B & C (per annum)	Caboolture	$68.00
Trade waste annual sewer discharge permit fee – category D (per annum)	Caboolture	$275.00
Trade waste category 3 legal agreement fee (per agreement)	Caboolture	$172.00

Description	District	Charge
Trade waste licence application fee – category A, B, C & D (per application)	Caboolture	$95.00
Trade waste sewer discharge permit fee (6 monthly)	Pine Rivers	$76.20

Source: Moreton Bay Regional Council, http://www.moretonbay.qld.gov.au/FeeSearchResults.aspx?l1=3747&l2=3783&l3=3787

The Moreton Bay Regional Council charges the following rates which are associated with trade waste:

- copy of trade waste environmental plan fee (per copy): $52.50
- licence fee for liquid waste transport contractor (p.a.): $218.00
- tankered liquid trade waste (per kL): $47.00
- food waste disposal units & vegetable peelers category A less than 400 watts rated power (p.a.) $528.00
- food waste disposal units & vegetable peelers category C greater than 600 watts rated power (p.a.): $4,760.00
- food waste disposal units & vegetable peelers category B 400 -600 watts rated power (p.a.): $2,421.00
- trade waste fee for review of cleaning/pump-out frequency of treatment devices (per review): $154.00
- trade waste inspection fee (min. fee of 2 hours) (per hour): $49.60
- trade waste plan verification, assessment, inspection and testing fee (min. charge of 2 hours) (per hour): $46.00

Sewerage charges

Sewerage charges imposed by the Moreton Bay Regional Council differ between the three districts. Table 32 to Table 34 provide an overview:

Table 32 Sewerage charges, Caboolture, 2009/10

Criteria	Charge ($)
Each connected private dwelling or home unit	$483.00
Flat buildings, boarding houses, combined shops and dwellings, business premises, hotels, motels and other businesses not otherwise stated – per pedestal, sanitary napkin disposal unit, urinal or unit.	$483.00
Group/strata titled commercial/industrial complex – per pedestal, sanitary napkin disposal unit or urinal (apportioned according to the Contribution Schedule of the Lot).	$483.00
Lodge halls, churches, and other premises on land not otherwise rated – per pedestal or urinal	$483.00
Buildings on Crown Land and schools connected to sewerage – per pedestal or urinal	$483.00

Criteria	Charge ($)
In respect of any building approved by the Council by resolution – per pedestal or urinal	$483.00
Council connected properties	$462.00
For each parcel of land served by sewerage – provided that in the instance of a dwelling and one adjoining vacant parcel of land which is zoned Residential A owned by one and the same persons then this vacant land charge shall not apply to this particular vacant parcel of land.	$447.00
Caravan Parks and Relocatable Home Parks:	
- For each caravan site; relocated home site or on-site cabin not connected directly to sewerage	$289.00
- For each caravan, cabin or relocatable home connected directly to sewerage	$387.00

Source: Moreton Bay Regional Council, Policies and Schedules 20009/10

Table 33 Sewerage charges, Pine Rivers District, 2009/10

Criteria	Charge ($)
On all domestic occupied land to which sewerage is available or connected and on which is erected a detached house or a residential unit within a Retirement Village registered under the provisions of the Retirement Villages 1999, regardless of the number of pedestals installed.	$498.00
On all domestic occupied land to which sewerage is available or connected and on which a detached house including attached flats or dwelling units are erected, regardless of the number of pedestals installed: - For the detached house; and - For each flat or dwelling unit. PROVIDED THAT if a detached house has one attached flat or dwelling unit which is considered by Council to be a Bona-Fide Attached Flat or Dwelling Unit regardless of the number of pedestals installed.	$498.00
On all occupied land not herein listed to which sewerage is available or connected and on which a structure, building, or place exists: - For each pedestal installed	$498.00
On all occupied land not herein listed to which sewerage is available or connected and on which a structure, building or place exists: - For each urinal of up to 2 metres in length; and - For each additional 2 metres or part thereof	$498.00
On all unoccupied land to which sewerage is available	$498.00

Source: Moreton Bay Regional Council, Policies and Schedules 20009/10

Table 34 Sewerage charges, Redcliffe District, 2009/10

Criteria	Charge ($)
Land used for Residential Purposes other than Hotels, Motels, Caravan Parks or the like irrespective of number of pedestals connected whether or not in actual occupation:	
For each dwelling flat or unit in a multi-unit building/s erected on a parcel of land	$379.44
AND	
For each registered lot in excess of three in each parcel of land	$145.08
OR	
For each lot within the meaning of the "Body Corporate and Community Management Act 1997"	$379.44
Land used for purposes other than Residential and not disposing of trade waste and not being a Hotel, Motel, Caravan Park or the like:	
For each W.C. pedestal installed on a parcel of land	$379.44
AND	
For each registered lot in excess of three in each parcel of land	$145.08

Criteria	Charge ($)
OR	
For each lot within the meaning of the “Body Corporate and Community Management Act 1997” for each pedestal installed. Provided that where W.C. pedestals are installed on common property the charge per lot shall be minimum of 68 units (1 unit = $5.58) per annum	$379.44
Land used for a hotel, motel or the like:	
For each 227 kilolitres or part thereof of water used or estimated to be used on a parcel of land for the last billing period prior to 1 July. Provided that in the first year of use the charge shall be based on the Council’s estimate of water to be consumed, based upon water consumption for other comparable land uses.	$379.44
OR	
For each W.C. pedestal installed on a parcel of land WHICHEVER CHARGE IS LESSER	$379.44
Land used for a caravan park	
For each 227 kilolitres or part thereof of water used or estimated to be used on a parcel of land for the last billing period prior to 1 July. Provided that in the first year of use the charge shall be based on the Council’s estimate of water to be consumed, based upon water consumption for other comparable land uses.	$379.44
Land used for any purpose disposing of trade waste into the Council’s sewer:	
For each 227 kilolitres or part thereof of water used or estimated to be used on a parcel of land for the last billing period prior to 1 July reduced by 20% to allow for usage not discharged as trade waste. Provided that in the first year of use the charge shall be based on the Council’s estimate of water to be consumed, based upon water consumption for other comparable land uses.	$379.44
At the sole discretion of the Council the percentage reduction referred to above may be increased to a maximum of 80%.	$379.44
OR	
For each pedestal installed WHICHEVER CHARGE IS THE GREATER	$379.44
Churches, denominational schools and other buildings provided that land used for purposes other than churches and denominational schools are approved by the Council resolution:	
For each 227 kilolitres or part thereof of water used or estimated to be used on a parcel of land for the last billing period prior to 1 July. Provided that in the first year of use the charge shall be based on the Council’s estimate of water to be consumed, based upon water consumption for other comparable land uses.	$379.44
OR	
For each W.C. pedestal installed on a parcel of land WHICHEVER CHARGE IS THE LESSER	$379.44
Land used for horse-washing facilities	
For each separate horse-washing facility on a parcel of land connected to the Council’s sewer	$379.44
Notwithstanding that land may be subject to a sewerage charge in another category the Council may by resolution approve that such land be charged:	
For each 227 kilolitres or part thereof of water used or estimated to be used on a parcel of land for the last billing period prior to 1 July Provided that in the first year of use the charge shall be based on the Council’s estimate of water to be consumed, based upon water consumption for other comparable land uses.	$189.72
OR	
For each W.C. pedestal installed on a parcel of land WHICHEVER CHARGE IS THE LESSER	$189.72
Vacant or occupied land not connected to the Council sewerage, but within 100 metres of the Council sewerage and form	

Criteria	Charge ($)
which the Council is prepared to carry off sewage:	
For the first subdivision in each parcel of land or for the first Group Title lot within the meaning if the "Body Corporate and Community Management Act 1997"	$290.16
For each additional subdivision or Group Title lot.	$145.08

Source: Moreton Bay Regional Council, Policies and Schedules 20009/10

Infrastructure charges

The MBRC charges a water supply trunk infrastructure contribution of $768.00 per capita of equivalent population and also a sewerage trunk infrastructure contribution of $1,066 per capita of equivalent population.[123]

Other charges[124]

Recycled water is provided in the Caboolture and Pine River districts. The consumption charges for recycled reticulated water as of 2009/10 are provided in Table 35.

Table 35 Recycled reticulated water, Caboolture and Pine River districts, 2009/10

Consumer class	Charge
Metered consumption charge for Class A and A+ bulk recycled water delivered through Council owned reticulation	$0.58 per kL
Metered consumption charge for Class B bulk recycled water delivered through Council owned reticulation.	$0.36 per kL

Source: Moreton Bay Regional Council, Policies and Schedules 20009/10

There are around eight different charges related to recycled water, including;

- annual charges for the provision of bulk water;
- bulk recycled standpipe access key deposit; and
- several metered consumption charges for recycled water.

There are also the following bulk water charges:

- annual permit for access to bulk recycled water outlets;
- sale of bulk potable water from Council outlets at Caboolture and Woodford.

Commercial use of Margate Water Tower:

[123] MBRC, Website, Link: http://www.moretonbay.qld.gov.au/feeSearchResults.aspx?m=1&keyword=infrastructure

[124] Moreton Bay Regional Council, Council fees and charges, Link: http://www.moretonbay.qld.gov.au/FeeSearchResults.aspx?l1=3747&l2=3793.

- access charge;
- after hours call out fee; and
- security deposits.

There are numerous laboratory charges for testing different chemicals.

In addition, there are 11 different charges related to metered hydrant standpipe charges, ranging from deposits over hire and access fees to consumption charges and 16 different charges relating to potable and recycled water installations.

C.3 Councils included in DB South

The third group of councils which will be the stakeholders for the third SEQ water business include the Gold Coast City Council, Logan City Council, and the Redlands City Council.

Gold Coast City Council

General pricing principles

No publicly available information could be found on general pricing principles applied by the Gold Coast City Council.

Water supply charges

The QCA provided the below water supply charges based on 250 kL (Table 36). The GCCC only applies a single tariff.

Table 36 Water charges, Gold Coast City Council, 2009/10

Charge	$
Bulk water charge (250 kL)	347.25
Access charge	160.00
Consumption charge (250 kL)	212.75
Total	**720.00**

Source: Information provided by QCA.

The above consumption charge implies a per kL charge of $0.85. The QWC bulk water charge is $1.39 cents. The components together yield a consumption charge of $2.24.

Table 37 provides an overview of residential and residential body corporate water prices for 2009/10.

Table 37 Residential and residential body corporate water prices 2009/10

Residential and residential body corporate	
Water Service Charge	
- For ongoing connection to the city's water distribution system	$80.00 per half year
Water Consumption Charge	
- For each kilolitre (1,000 litres) used, as measured by water meter [a]	$2.24 per kilolitre (incl. new State Government bulk water charges of 59 cents per kL)

Source: Gold Coast City Council (2009), Water and wastewater pricing 2009/10. Link: http://www.goldcoastwater.com.au/attachment/goldcoastwater/gcw_pricing_fs1.pdf

Water service charges for non-residential customers are charged in advance and are based on the number and size of water meters connected to the property. The current minimum water service fee is $142.50 per half year, based on a 20mm diameter water meter connection. For meters 25mm and above, there is a tiered charge based on the size of the meter and the consumption for the previous year. The water consumption charge is the same as for residential customers.[125]

Trade waste charges

Trade waste charges are incorporated into wastewater charges (see below). In order to discharge waste to Gold Coast City Council's wastewater system, the discharger requires an approval from the Council.

Sewerage (wastewater) charges

Wastewater service charges are charged in advance and set for each residential property. It helps to cover the cost of the provision and maintenance of the wastewater services and includes:

- maintenance of the extensive wastewater system;
- operation of wastewater treatment plants;
- improvements to wastewater treatment processes; and
- helping to protect the environment.

In 2009/10 the wastewater charge is $273.50 per half year. The same rate also applies to non-residential customers; however, non-residential customers are required to pay an additional wastewater volume charge of $3.37 per kL.[126]

[125] Gold Coast City Council (2009), Water and wastewater pricing 2009/10. Link: http://www.goldcoastwater.com.au/attachment/goldcoastwater/gcw_pricing_fs1.pdf

[126] For each kilolitre of wastewater released into the wastewater distribution system less the half-yearly discharge allowance.

Infrastructure charges

The Gold Coast City Council charges developer contribution policy charges for the water and sewer networks. These charges are generally calculated when a development application has been approved. The charges are imposed per equivalent tenement and vary per regional category and within categories. The three categories for the water supply infrastructure charges are:[127]

- category 1: $ 2,835.76;
- category 2: $ 2,351.32 or $ 2,942.10; and
- category 3: between $ 8.39 and $ 8,495.29.

The three categories for the sewerage infrastructure charges are:[128]

- category 1: $ 3,603.78 or $ 5,441.12;
- category 2: $ 2,871.21 or $ 3,615.60; and
- category 3: between $ 252.96 and $ 13,094.61.

Other charges

The Gold Coast City Council offers "class A+ recycled water", which is a new product available to specially plumbed homes in the Pimpama Coomera Waterfuture Master Plan area during the second half of 2009. The charge is $1.34 per kilolitre.

Additionally, there are the following charges related to metered standpipe water supply:

- long term hire security deposit;
- short and long term hire daily charge;
- standpipe water sales;
- class A+ standpipe water sales; and
- repair charge for damaged standpipe.

[127] GCCC, Infrastructure Charge Rates – Developer contribution charge rates – water and sewer networks, Link: http://www.goldcoast.qld.gov.au/t_standard2.aspx?PID=7080#04

[128] GCCC, Infrastructure Charge Rates – Developer contribution charge rates – water and sewer networks, Link: http://www.goldcoast.qld.gov.au/t_standard2.aspx?PID=7080#04

Logan City Council

General pricing principles

No publicly available information could be found on general pricing principles applied by the Logan City Council. Limited information is available on trade waste policies described further below in this section.

Water supply charges

The QCA provided the below water supply charges based on 250 kL (Table 38). The consumption charge consists of a single component and equals $2.25 per kL.

Table 38 Water charges, Logan City Council, 2009/10

Charge	$
Bulk water charge (250 kL)	386.88
Access charge	200.00
Consumption charge (250 kL)	175.63
Total	**762.50**

Source: Information provided by QCA.

The Logan City Council charges the following water service and consumption charges for:

- residential and non-residential properties in Logan City;
- residential and non-residential properties in former Beaudesert Shire (transferred area A); and
- residential and non-residential properties in former Gold Coast City (transferred area D).

Residential and non-residential properties in Logan City

The base water charge is a fixed amount based on the size of the water service connection (residential is usually 20mm in diameter). The annual service charge is calculated by multiplying the base water charge by a capacity factor (CF), which is determined by the diameter of the water connection (e.g. CF = 1.00 when diameter is 20mm or less; CF = 225 when diameter is 300mm)(Table 39).

Table 39 Residential and non-residential properties in Logan City

Category	Base Water Service Charge	Consumption Charge per kilolitre (1,000l) 2009/10

Category	Base Water Service Charge	Consumption Charge per kilolitre (1,000l) 2009/10
Vacant land, non-connected	$200	n/a
Residential property	$200 x CF	$2.25
Community Title, Residential (Non-individually metered)	$200	$2.25 per kL and apportioned to each lot according to the prescribed lot entitlement.

Source: Logan Water, Water service charge and consumption charges, Link: http://www.logan.qld.gov.au/LCC/residents/water/waterbilling/waterservicecharge.htm

Residential and non-residential properties in former Beaudesert Shire (transferred area A)

The base water service charge for "on demand (metered)" and "restricted demand service" is a fixed amount based on the size of the water service connection. Annual access charges are calculated by multiplying the access charge by a capacity factor (Table 40).

Table 40 Residential and non-residential properties in former Beaudesert Shire

Category	Base Water Service Charge	Consumption Charge per kilolitre (1000l), 2009/10
On Demand Service (Metered)	$340	$2.25
Restricted Demand Service	$340	$2.25
Community Title, Residential (Non-individually metered)	$340	$2.25 per kilolitre and apportioned to each lot according to the prescribed lot entitlement
Vacant Land Non-connected	$340	n/a

Source: Logan Water, Water service charge and consumption charges, Link: http://www.logan.qld.gov.au/LCC/residents/water/waterbilling/waterservicecharge.htm

Residential and non-residential properties in former Gold Coast City (transferred area D)

The water service charge for residential properties is a fixed amount based on the size of the water service connection. The diameter of the service is adjusted based on the level of usage (e.g. annual water consumption rate between 1161 and 1814 kL using 80mm diameter is regarded as 50mm diameter charge).

The annual service charge is calculated by multiplying the base water service charge by a capacity factor (CF). (Table 41)

Table 41 Residential and non-residential properties in former Gold Coast City

Category	Base Water Service Charge	Consumption Charge per kilolitre (1000l), 2009/10
Vacant land, Non-connected	$180	n/a
Residential	$180 x CF	$2.25

Category	Base Water Service Charge	Consumption Charge per kilolitre (1000l), 2009/10
Non-residential property	$294 x CF	$2.25
Community Title, Residential (Non-individually metered)	$180	$2.25 per kilolitre and apportioned to each lot according to the prescribed lot entitlement.

Source: Logan Water, Water service charge and consumption charges, Link: http://www.logan.qld.gov.au/LCC/residents/water/waterbilling/waterservicecharge.htm

Trade waste charges

Trade waste charges in the Logan City Council consist of the following three components (Table 42):

- base charge;
- conveyance and treatment charge; and
- quality analysis charge.

Table 42 Charges overview

Category		
Base charges		Base charge 2009/10
1. Low strength /Low Volume discharge		$74.00
2. Medium strength (e.g. takeaway food outlets or motor vehicle workshops)		$496.30
3. High strength (e.g. milk processing, paper recycling)		$743.10
Conveyance and Treatment Charges		
Category 1		
- Flat fee	each	$216.61
Category 2		
- Unit charge (kL)	kL	$1.19
Category 3 [a]		
- Vol (Volume)	kL	$0.62
- BOD	kg	$0.96
- NFR	kg	$1.43
- COD	kg	$0.51
- TOG	kg	$0.72
All other parameters in excess of sewer admission limits and not referred to above $0.72 kg.		

a BOD – biological oxygen demand; NFR – non-filterable residue; COD – chemical oxygen demand; TOG – total oil and grease.

Note:

Source: Logan City Council, Trade waste charges 2009/10. Link: http://www.logan.qld.gov.au/NR/rdonlyres/F7C7723C-628C-474D-9623-CF88A62ED7FA/0/TradewastechargesDL2009.pdf

An additional charge applies where trade waste quality analysis is undertaken in addition to the standard audit analysis performed as part of the Fixed Base Charge. These charges are $280.00 for contract customers and $305.70 for default customers.

Some of the objectives in controlling the discharge of trade waste into the sewerage system through charges are to:[129]

- recover the cost of services to commerce and industry including the cost of treatment and damage to the sewerage system;
- encourage industrial development but at the same time achieve industry compliance with this policy;
- promote water conservation;
- reduce waste by encouraging awareness of a product's life cycle and including environmental costs in the cost of the product; and
- encourage the management of waste in accordance with the following waste management hierarchy:
  - waste avoidance;
  - waste recycling;
  - waste to energy;
  - waste treatment; and
  - waste disposal.

Sewerage charges

According to Logan City Council's 2009/10 Budget, the residential sewerage charge increased from $423 in 2008/09 to $459 in 2009/10. The charge is the same for former Logan ratepayers, former Beaudesert ratepayers and former Gold Coast ratepayers.[130]

Infrastructure charges

A charge for trunk infrastructure is levied upon developers to recover an apportionment of the establishment cost for providing relevant trunk infrastructure

[129] Logan City Council (2007), Trade Waste – Policy. Link: http://www.logan.qld.gov.au/NR/rdonlyres/EF4A4911-5670-4B66-B784-A134DCA283BE/0/tradewastepolicy.pdf

[130] Logan City Council, 2009/10 Budget at a glance, Link: http://www.logan.qld.gov.au/nr/rdonlyres/3147db9a-5243-4f7f-8f18-ade051e8c1e0/0/budgetataglance.pdf

assets.[131] The trunk infrastructure includes amongst others water supply and sewerage. Cardno provided the following information on water infrastructure charges for some catchments in the Logan City Council. The charges are imposed per equivalent population:

- Springwood HL: $1,413;
- Underwood: $1,311;
- Springwood LL: $1,778; and
- Green bank: $2,109.

The following are sewer infrastructure charges for selected catchments in the Logan City Council area. Again the charges are imposed per equivalent population.

- Springwood: $1,191;
- Marsden: $1,496; and
- Browns plains: $1,752.

Other charges

It is possible to apply for water supply through metered standpipes. Recycled water is available through standpipes close the Loganholme water treatment plant. The water is currently collected by tankers.

Redland City Council

General pricing principles

No publicly available information could be found on general pricing principles.

Water supply charges

The QCA provided the below water supply charges based on 250 kL (Table 43). The Council uses an inclining block tariffs with three tiers. Tier 1 is for the first 146 kL, tier 2 for consumption between 147kL to 292 kL and tier 3 for consumption greater than 292 kL.

[131] Logan City Council (2009), 2009/10 budget, Link: http://www.logan.qld.gov.au/nr/rdonlyres/f0869fdc-dc2b-4dc7-9c04-cff37ad65e01/0/budget20092010.pdf

Table 43 Water charges, Redland City Council, 2009/10

Charge	$
Bulk water charge (250 kL)	177.50
Access charge	233.50
Consumption charge (250 kL)	210.00
Total	**621.00**

Source: Information provided by QCA.

The above consumption charge (tier 1) incl. the bulk water charge implies a charge of $1.55 per kL.

Redland City Council's residential and non-residential water charges are a two-part tariff consisting of an:

- access charge; and
- consumption charge.

Table 44 provides an overview of residential and non-residential access charges depending on meter size.

Table 44 Residential and non-residential access charges

Meter Size (mm)	Residential Charge	Non-residential Charge
20 mm	$233.50	$304
25 mm	$365	$475
32 mm	$598	$777
40 mm	$934	$1,214
50 mm	$1,459	$1,897
80 mm	$3,736	$4,857
100 mm	$5,838	$7,589
150 mm	$13,134	$17,074

Source: Redland City Council, Water Charges 2009/10, Link: http://www.redland.qld.gov.au/Water-Waste/Water/Water%20charges%20and%20meter%20reads/Pages/Water%20charges.aspx

Residential and concessional water consumption charges for 2009/10 are:[132]

- $1.55 per kilolitre for the first 400 litres per day;
- $1.95 per kilolitre between 401 litres and 800 litres per day;
- $2.35 per kilolitre above 800 litres per day.

[132] Redland City Council, Water Charges 2009/10, Link: http://www.redland.qld.gov.au/Water-Waste/Water/Water%20charges%20and%20meter%20reads/Pages/Water%20charges.aspx

Non-residential (commercial, industrial) and Council water consumption is charged at $2.35 per kilolitre.

The following concessional water consumption charges are offered to organisations such as churches and sporting clubs upon application. No access charge is charged.[133]

- $1.55 per kilolitre for the first 400 litres per day;
- $1.95 per kilolitre between 401 litres and 800 litres per day; and
- $2.35 per kilolitre above 800 litres per day.

The consumption charges provided by the Redland City Council ($1.55 per kL for first 400 litres per day) are inconsistent with the consumption charges provided by the QCA ($1.01 per kL). Adding the QWC bulk water charge of $0.71 to the latter charge yields $1.82 per kL which is above the price quoted by the council.

Trade waste charges

Trade waste charges are based on effluent and wastes entering the sewerage system and treatment. The Redland City Council determined the following charges for 2009/10 (Table 45).

Table 45 Trade waste charges, 2009/10

Trade waste – description	Unit	Charge ($)
Disposal of grease waste at a suitable location (per kL)	Per kL	337.00
Disposal of chemical toilet at a suitable location (per kL)	Per kL	90.00
Disposal of domestic strength sewage at a suitable location (per kL)	Per kL	6.10

Source: Redland City Council – 2009/10 Fees and Charges. Link: http://web01.redland.qld.gov.au/robo/Minutes_Agendas/April_June09/Minutes/June/Special_26_June/Item5.2_INFRASTRUCTURE_AMENDMENTS_2009-10_FeesCharges.pdf

Sewerage charges

The Charges and Fees schedule from 2009/10 does not set out specific sewerage charges. Redland City Council, however, states the following with respect to sewerage charges:[134]

[133] Redland City Council, Water Charges 2009/10, Link: http://www.redland.qld.gov.au/Water-Waste/Water/Water%20charges%20and%20meter%20reads/Pages/Water%20charges.aspx

[134] Redland City Council, Utility charges-sewerage charges, Link: http://www.redland.qld.gov.au/Residents/Rates/Pages/Utility%20charges.aspx

This charge is levied on all improved and vacant properties where a sewerage service is available.

For most properties, sewerage charges are set as one tariff on sewer units. Residential properties, vacant commercial and industrial sewered properties are charged for 25 sewer units.

Commercial and industrial properties that are sewered and developed are charged for 25 units for the first pedestal and 20 units for each additional pedestal or equivalent pedestal (urinal).

Infrastructure charges [135]

Redland Water imposes augmentation charges for the transport of wastewater and for the treatment of wastewater. The charges are imposed per equivalent tenement and differ regionally (there are 27 different augmentation charges for the transport of wastewater and seven different augmentation charges for the treatment of wastewater).

There are also augmentation charges for trunk water supply and other water supplies all imposed per equivalent tenement.

Other charges[136]

Other charges by Redland Water include Water Efficiency Management Plan (WEMP) fees and water meter fees including water meter search charges, water meter read charges, as well as verification meter accuracy charges. The charges differ between the mainland and the island with the island charges being higher.

There are also water connection fees to the water main which again differ between mainland and island. Other charges cover hydrant permits (metered standpipes) and alterations to meter position.

There is also a charge for recycled water supply through metered standpipes.

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[135] Redland City Council, , 2009/10 Fees & Charges, Link: http://web01.redland.qld.gov.au/robo/Minutes_Agendas/April_June09/Minutes/June/Special_26_June/Item5.2_INFRASTRUCTURE_AMENDMENTS_2009-10_FeesCharges.pdf

[136] Redland City Council, , 2009/10 Fees & Charges, Link: http://web01.redland.qld.gov.au/robo/Minutes_Agendas/April_June09/Minutes/June/Special_26_June/Item5.2_INFRASTRUCTURE_AMENDMENTS_2009-10_FeesCharges.pdf

D Attachment 4. Wastewater Treatment Plants

		WWTP	Capacity EP	Classification	Process Technology
DB Central	Beaudesert	Beaudesert	8,000	Secondary	Trickling Filter
		Kooralbyn	2,000	Secondary	Extended Aeration
		Jimboomba	1,090	Secondary	CED
		Canungra	850	Secondary	Package Plant
		Logan Village	110	Secondary	Package Plant
	Boonah	Boonah	2,000	Low Cost Secondary	Imhoff Tank/Lagoons
		Kalbar	500	Low Cost Secondary	Imhoff Tank/Lagoons
		Aratula	500	Low Cost Secondary	CED
	Brisbane	Fairfield	9,600	Secondary	Conventional Activated Sludge
		Gibson Island	186,000	Nutrient Reduction	BNR
		Karana Downs	3,200	Secondary	Extended Aeration
		Wacol	30,000	Nutrient Reduction	BNR
		Luggage Point	900,000	Secondary	Conventional Activated Sludge
		Oxley Creek	185,000	Secondary	BNR
		Sandgate	100,000	Nutrient Reduction	BNR
		Wynnum	37,500	Secondary	
		Nudgee Beach	500	Secondary	Package Plant
	Esk	Toogoolawah	870	Low Cost Secondary	Imhoff Tank/Lagoons
		Esk	1,200	Low Cost Secondary	Imhoff Tank/Lagoons
		Lowood	1,200	Secondary	Trickling Filter
		Femvale	400	Secondary	Package Plant
		Somerset Dam	100	Secondary	Package Plant
	Gatton	Gatton	5,500	Secondary	Trickling Filter
		Helidon	700	Secondary	
	Ipswich	Bundamba Wastewater Centre	100,000	Nutrient Reduction	BNR
		Goodna Wastewater Centre	85,000	Nutrient Reduction	BNR
		Carole Park	26,000	Nutrient Reduction	BNR
		Rosewood	2,600	Nutrient Reduction	BNR
	Kilcoy	Kilcoy	1,700	Secondary	Trickling Filter
	Laidley	Laidley	5,400	Low Cost Secondary	Imhoff Tank/Lagoons
		Forest Hill	700	Low Cost Secondary	Imhoff Tank/Lagoons
DB North	Caboolture	South Caboolture	40,000	Nutrient Reduction	BNR
		Burpengary	37,500	Nutrient Reduction	BNR

		WWTP	Capacity EP	Classification	Process Technology
		Bribie Island	19,000	Nutrient Reduction	BNR
		Woodford	1,500	Nutrient Reduction	Extended Aeration
	Caloundra	Caloundra	32,000	Secondary	Extended Aeration
		Kawana	70,000	Nutrient Reduction	BNR
		Landsborough WRP	5,000	Nutrient Reduction	BNR
		Maleny	2,000	Nutrient Reduction	BNR
	Maroochy	Kenilworth	400	Low Cost Secondary	Imhoff Tank/Lagoons
		Eumundi	750	Secondary	
		Yandina	3,500	Secondary	
		Nambour	13,500	Nutrient Reduction	BNR
		Maroochydore	96,000	Nutrient Reduction	BNR
		Coolum	25,000	Nutrient Reduction	BNR
		Sunshine Coast	13,400	Nutrient Reduction	BNR
	Noosa	Cooroy	3,000	Nutrient Reduction	BNR
		Noosaville (Coastal Treatment Plant)	33,000	Nutrient Reduction	BNR
	Pine Rivers	Murrumba Downs	75,000	Nutrient Reduction	BNR
		Brendale	30,000	Nutrient Reduction	BNR
		Dayboro	1,600	Nutrient Reduction	BNR
	Redcliffe	Redcliffe	75,000	Nutrient Reduction	BNR
DB South	Redland	Thorneside	60,000	Nutrient Reduction	BNR
		Cleveland	42,000	Nutrient Reduction	BNR
		Capalaba	52,000	Secondary	BNR
		Victoria Pt	30,000	Tertiary Nutrient Reduction	BNR
		Mt Cotton	9,600	Nutrient Reduction	BNR
		Dunwich	3,000	Nutrient Reduction	BNR
		Pt Lookout	12,000	Secondary	BNR
	Gold Coast	Beenleigh	40,000	Nutrient Reduction	BNR
		Coombabah	300,000	Nutrient Reduction	BNR
		Merrimac	128,000	Nutrient Reduction	BNR
		Elanora	100,000	Nutrient Reduction	BNR
	Logan	Loganholme Water Pollution Control Centre (WPCC)	208,000	Nutrient Reduction	BNR

Note: BNR – **Biological** Nutrient Reduction

E Attachment 5. Servicing strategy for new development areas

Table 46 Development Areas and Proposed Servicing Strategy

Description	Development Classification	Development Type			Proposed Infrastructure		
		Residential	Employment	Residential & Employment	New WWTP	Recycled Water	Direct Connection to Bulk Transport Grid
Ebenezer	Regional Development Area	-	Yes	-	Yes or upgrade to Rosewood likely equivalent to new plant	Likely	Via Ipswich CC network
Bromelton	Regional Development Area	-	Yes	-	Yes	Likely	-
Ripley Valley	Regional Development Area	-	-	Yes	-	No except potentially high value open space	Yes via Ipswich CC network
Caloundra South	Regional Development Area	-	-	Yes		TBC	Yes via Sunshine Coast RC network
Palmview	Regional Development Area	-	-	Yes	Yes	Likely	Yes – TBC
Park Ridge	Regional Development Area	-	-	Yes	-	-	Yes via Logan CC network
Flagstone	Regional Development Area	-	-	Yes	Upgrade to existing	-	-
Coomera	Regional Development Area	-	-	Yes	Upgrade to existing	Yes	Yes via GCCC network
Maroochydore	Regional Development Area	-	-	Yes	-	-	Yes via Sunshine Coast RC network
Yarrabilba North	Regional Development Area	-	-	Yes	Yes	-	Likely
Elimbah East	Regional Development Area	-	Yes	-	-	No – TBC	Yes via Moreton Bay RC network
Kinross Road	Local Development Area	Yes	-	-	-	-	Yes via Redland CC network
South East Thornlands	Local Development Area	Yes	-	-	-	-	Yes via Redland CC network
Bahers Scrub	Local Development Area	Yes	-	-	-	-	Yes via Logan CC network
Victoria Point	Local Development Area	Yes	-	-	-	-	Yes via Redland CC network
Gatton North	Local Development Area	-	Yes	-	Upgrade to existing or new	TBC	-
Steiglitz	Local Development Area	-	Yes	-	New – TBC	TBC	Yes via GCCC network
Nambour	Local Development Area	-	-	Yes	-	-	Yes via Sunshine Coast RC network

Description	Development Classification	Development Type			Proposed Infrastructure		
		Residential	Employment	Residential & Employment	New WWTP	Recycled Water	Direct Connection to Bulk Transport Grid
Narangba	Local Development Area	-	-	Yes	-	-	Yes via Moreton Bay RC network
Greenbank Central	Local Development Area	-	-	Yes	Yes	-	Yes via Logan CC network
Plainland	Local Development Area	-	-	Yes	TBC	No – TBC	-
Canungra	Local Development Area	Yes	-	-	Significant upgrade of existing	Potentially	-
Beaudesert	Local Development Area	Yes	-	-	Yes – part of Bromelton works	Bromelton	-
Westbrook (Toowooma)	Identified Growth Area	Y	-	-	No – TBC	TBC	Yes via Toowoomba RC network (i.e. new Wivenhoe to Cressbrook pipeline)
Beerwah	Identified Growth Area	-	Y	-	Unlikely	Unlikely	Yes via Sunshine Coast RC network
Lanefield/ Grandchester	Identified Growth Area	Yes	-	-	Incorporate in Ebenezer	No	Via Ipswich CC network
Caboolture West	Identified Growth Area	-	-	Yes	Unlikely	Unlikely	Yes via Sunshine Coast RC network
Greenbank	Identified Growth Area	-	-	Yes	Yes – part of Greenbank Centre	-	Yes via Logan CC network
New Beith/ Round Mount	Identified Growth Area	Yes	-	-	Yes – part of Flagstone or Greenbank	-	Yes via Logan CC network
North Maclean	Identified Growth Area	-	Yes	-	Yes – part of Flagstone or Greenbank	-	Yes via Logan CC network
Greater Flagstone	Identified Growth Area	-	-	Yes	Yes – part of Flagstone	-	Yes via Logan CC network
(Greater) Yarrabilba	Identified Growth Area	-	-	Yes	Yes – part of Yarrabilba North	-	Likely
Purga	Identified Growth Area	-	Yes	-	Incorporate in Ebenezer	Likely	Via Ipswich CC network
Greater Bromelton	Identified Growth Area	-	Yes	-	Yes – part of Bromelton	Likely	-
Ormeau	Identified Growth Area	-	Yes	-	Likely	Likely	Yes via GCCC network
Beaudesert South	Identified Growth Area	Yes	-	-	Yes – or part of Bromelton	Unlikely	-
Beewah/ Caloundra South	Identified Growth Area	-	-	Yes	Likely	TBC	Likely
Caloundra South	Identified Growth Area	-	-	Yes	Likely – part of Caloundra	TBC	Likely

Description	Development Classification	Development Type			Proposed Infrastructure		
		Residential	Employment	Residential & Employment	New WWTP	Recycled Water	Direct Connection to Bulk Transport Grid
(Halls ?)					South		

F Attachment 6. Maps and Diagrams