Final Report

Inquiry on Competition in the Water and Wastewater Services Sector

30 June 2008

Economic Regulation Authority
WESTERN AUSTRALIA

A full copy of this document is available from the Economic Regulation Authority web site at www.era.wa.gov.au.

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Contents

List of Tables

List of Figures

Executive Summary

The main challenge faced by the water and wastewater services sector is to ensure security of supply is maintained at least cost. For most products and services, competition between businesses seeking to win customers ensures this occurs. However, the water and wastewater industry has certain characteristics which limit competition.

In July 2007, the Authority received from the Treasurer a Terms of Reference requesting it to undertake an inquiry into competition in the water and wastewater services sector and provide advice on possible competitive enhancements. The objective of the Authority has been to develop a set of recommendations which allow for competitive enhancements while recognising the unique characteristics of the industry.

The Authority is pleased to present its final recommendations. Acceptance of the Authority's final recommendations will not lead to any major structural reforms of the like experienced recently in the electricity industry. Rather, the Authority has been mindful of the differences between the two industries. It has sought to develop a set of recommendations which recognise these differences while seeking to take advantage of benefits that increased competition, such as the electricity reforms have produced, can bring to consumers.

An Independent Procurement Entity

The main recommendation relates to the institutional arrangements involved in maintaining security of water supply within the Integrated Water Supply Scheme (**IWSS**). In developing this recommendation, the Authority has examined the current arrangements as well as the Water Corporation's (**Corporation**) proposed procurement model. The Authority considers that these models suffer from a number of shortcomings. These shortcomings include:

- Centralised coordination without sufficient checks and balances.
- An unclear delineation of roles and responsibilities.
- A lack of opportunity and incentive for the private sector to develop alternative innovative supply and demand management options.

As such, an alternative model is necessary to ensure the least expected cost balancing of supply and demand. The Authority is therefore recommending the establishment of an Independent Procurement Entity (**IPE**).

Role of the Independent Procurement Entity

The IPE would be responsible for managing all supply source and demand management options. In broad terms, the IPE would:

- Receive from the Government a supply security requirement.
- Subject to this security requirement, identify future supply shortfalls and seek ways to meet these shortfalls via supply augmentations and demand management options developed by the private sector and Corporation.

The IPE would be funded by water customers through water tariffs and would manage existing and newly acquired options to ensure security of supply was maintained at least cost.

Benefits of an Independent Procurement Entity

The IPE model allows for greater competition in the identification of alternative options relative to the Corporation's proposed model. This additional competition will ensure that all possible alternatives are considered and subsequently the least cost combination of options developed. Customers will experience benefits through reduced water bills.

Furthermore, the IPE would create a single agency with responsibility for managing all water supply and demand management functions within the IWSS. These functions are currently dispersed between the Corporation, the Department of Water and Government Ministers. As such, the IPE offers sizable coordination benefits.

The introduction of the IPE presents little downside risk as it incorporates the Corporation's model as a 'fallback' arrangement. However, the IPE model has potentially significant upside benefits. These benefits stem from its ability to identify innovative lower cost options.

Potential Benefit of an IPE

The IPE offers significant potential savings for customers. It would achieve this by investigating all possible options and ensuring the least cost combination were developed.

Imagine that the IPE was considering the construction of a desalination plant. If it was able to identify an alternative option, every year construction of the plant was postponed, customers would save approximately $50 to $100 million.

Implementation of an Independent Procurement Entity

The IPE is similar in many respects to the water industry model adopted in South East Queensland. In South East Queensland, an entity separate from the network provider has been established to manage supply source and demand management procurement.

The IPE is also comparable with the Independent Market Operator (**IMO**) in the Western Australian Wholesale Electricity Market. In this market, the IMO ensures security of supply based on a security requirement developed by the Government.

Similarly, the IPE model has parallels with the independent Reserve Bank of Australia, but instead of achieving a target inflation rate, the IPE would achieve the Government's target level of water security.

Other Recommendations

The Authority has made a series of recommendations on other matters. These recommendations are also aimed at making competitive enhancements to the water and wastewater services sector and relate to:

- third party access;
- water trading;
- the payment of Community Service Obligations;
- alternative industry structures;

- retail contestability; and
- scarcity pricing.

Third Party Access

The Authority recommends that a simple State-based third party access regime be developed. While access can be sought under the *Trade Practices Act 1974*, this can be a costly and time consuming process. The development of a State-based regime will eliminate this barrier to entry.

The State-based third party access regime being introduced in New South Wales provides a good model upon which to base a Western Australian regime.

Water Trading

The Authority recommends that an effective water trading regime be developed as a matter of urgency. To ensure the effectiveness of the regime, the Authority makes the following recommendations:

- The Department of Water should:
  - adopt neutral auctioning processes when considering the reservation of water for future public suppliers;
  - treat all Water Access Entitlement holders equally, especially when considering imposing reductions to allocations;
  - issue water licences using neutral market mechanisms; and
  - avoid using administratively determined efficiency targets when approving Source Development Plans.
- Water Access Entitlements should be issued to individuals rather than to irrigation cooperatives to remove the barrier to individuals trading their entitlement.
- Exit payments should not be levied on irrigators who choose to leave an irrigation cooperative (notwithstanding any pre-existing contractual obligations).
- All significant users within a catchment, including pine plantations, should be included when developing Water Allocation Management Plans and issuing water licences.
- A water trading market should be established despite a degree of scientific uncertainty.

The current legislative review of water resource legislation should be expanded to address these matters.

In addition, the Authority found that the concerns regarding water hoarding appear to be limited. The *Trade Practices Act 1974* appears sufficient to address any concerns should they arise.

Payment of Community Service Obligations

The Authority recommends that the Department of Treasury and Finance develop a policy to allow Community Service Obligation payments to be made to non-government entities. This would allow for increased competition and subsequently savings in the provision of these services.

Alternative Industry Structures

The Authority recommends that business cases be developed regarding:

- the creation of a multi-utility responsible for providing electricity, water and wastewater services in the area of operations currently covered by Horizon Power; and

- alternative configurations of water and wastewater service provision in the Bunbury and Busselton regions.

These recommendations follow the completion of prefeasibility studies which indicate that there are potential benefits from these alternative industry structures.

Retail Contestability

The introduction of a fully contestable retail market is premature at this time. However, applications from potential residential retail service providers, which may arise as a result of a third party access regime, should be considered on a case-by-case basis with the terms and conditions subject to approval.

Terms and conditions associated with the provision of retail services to non-residential customers should be the subject of commercial negotiations.

Scarcity Pricing

The Authority recommends that scarcity pricing be considered in additional detail as part of its upcoming inquiry on tariffs for the Corporation, Bunbury Water Board and Busselton Water Board.

Summary of Final Recommendations and Findings

Bulk Water Procurement

1) An Independent Procurement Entity be established with responsibility for ensuring least expected cost balancing of supply and demand within the Integrated Water Supply System subject to the constraint of maintaining security of supply at a level set by the Government.

Third Party Access

2) A State-based third party access regime be implemented in Western Australia. Third party access to natural monopoly infrastructure can be obtained under the provisions of the *Trade Practices Act 1974*. However, this can be a time consuming and costly process which can discourage market entry. As such, a State-based third party access regime should be introduced to allow for easier access.

3) A simple State-based third party access regime, which can be refined later, be implemented given the unknown demand for access. The New South Wales State-based third party access regime provides a good model.

Water Trading Mechanisms

4) An effective water trading regime be established as a matter of urgency. There is scope for water trading and buy backs in the South-West, including from the Harvey Water region, the Gnangara Mound and Wellington Dam.

5) Various roles and functions of the Department of Water be addressed to ensure the operation of an effective water trading regime. Adjustments are required to:

- Water Allocation Management Plans;
  - Neutral auctioning processes be used when considering the reservation of water for future public suppliers.
  - All entitlement holders be treated equally, especially when considering imposing reductions to allocations.
- Licensing procedures;
  - Neutral market mechanisms be used when issuing water licences.
- Efficiency targets;
  - Administratively determined efficiency targets be avoided when approving Source Development Plans.

6) Water Access Entitlements be issued to individuals rather than to an irrigation cooperative to remove the barrier to trade.

7) Exit payments not be levied on irrigators who choose to leave an irrigation cooperative, notwithstanding any pre-existing contractual obligations.

8) The current legislative review by the Department of Water address concerns related to the:

- development of Water Allocation Management Plans;

- issuance of water licences;
- approval of Source Development Plans;
- issuance of Water Access Entitlements to irrigation cooperatives and not individuals; and
- imposition of exit payments by irrigation cooperatives on those choosing to leave a cooperative.

9) All significant users within a catchment, including pine plantations, be included when developing Water Allocation Management Plans and issuing water licences.

10) Finalisation of the Gnangara Mound Water Allocation Management Plan and Gnangara Mound Sustainability Strategy are critical. Finalisation of the Yarragadee Aquifer Water Allocation Management Plan is also critical. In the meantime, an effective water trading market should be developed.

11) The concerns regarding water hoarding appear to be limited. The *Trade Practices Act 1974* appears sufficient to address any concerns should they arise.

Community Service Obligations

12) The Department of Treasury and Finance develop a policy to allow Community Service Obligation payments to be made to non-government entities.

Regional and Remote Operations

13) A comprehensive business case be developed regarding the creation of a utility responsible for the provision of electricity, water and wastewater services in Horizon Power's current area of operation.

14) A comprehensive business case be developed regarding alternative configurations of water and wastewater service provision in the Bunbury and Busselton regions given that a prefeasibility study of costs indicates that there are significantly less costly configurations than the current arrangements.

Retail and Pricing

15) The most cost-effective approach to allow for retail contestability be developed. This is necessary given that retail competition is required to support third party access and that any potential service provider can seek access to a natural monopoly's infrastructure.

16) The introduction of a fully contestable retail market is premature at this time. Applications from potential residential retail service providers should be considered on a case-by-case basis and the terms and conditions subject to approval. Terms and conditions associated with the provision of retail services to non-residential customers should be the subject of commercial negotiations.

17) The introduction of a pricing regime that allows price to vary based on supply has merit in sending price signals. These price signals indicate to consumers the cost of their consumption and provide producers with information regarding potential investment opportunities. This matter will be considered in more detail as part of the Authority's upcoming inquiry on tariffs for the Corporation, Bunbury Water Board and Busselton Water Board.

1 Introduction

On 6 July 2007, the Treasurer of Western Australia gave written notice to the Economic Regulation Authority (**Authority**) to undertake an inquiry into competition in the water and wastewater services sector. This is the Authority's Final Report.

1.1 Terms of Reference

This inquiry has been referred to the Authority under Section 32 of the *Economic Regulation Act 2003* (**Act**). Section 32 allows the Treasurer to refer to the Authority inquiries on matters related to regulated industries (i.e. water, gas, electricity and rail).[1]

A full text of the Terms of Reference is provided in Appendix 1.

In accordance with the Terms of Reference, the Authority is to provide advice on possible competitive enhancements for the delivery of water and wastewater services. Key areas of focus are to include:

- enhancing the efficiency of future water source procurement (and other significant capital investment) processes, including issues associated with current market structures and mechanisms, such as competitive tendering models, and determining the trigger conditions for committing to the acquisition of a new source;
- opportunities for enhanced competition by introducing third party access regimes to existing water and wastewater-related infrastructure, including identifying appropriate principles and mechanisms to implement efficient and effective regimes; and
- other reforms to the water and wastewater market which may enhance competition, including the establishment of water trading mechanisms and the benefits, costs and issues associated with them (e.g. inter-regional trades, market dominance and water hoarding) and arrangements for community service obligations paid by the State Government to service providers.

In examining the matters raised in the Terms of Reference, the Authority is required to have regard to:

- the roles and responsibilities of participants in the industry, both Government and private sector, recognising that certain services (e.g. water transmission and distribution) have strong natural monopoly characteristics;
- approaches taken in other jurisdictions;
- the costs and benefits of alternative industry structures, including transitional costs that may be incurred in changing to a new structure;
- any impacts, including service provision, operational or financial impacts, on existing asset owners and operators; and
- any impact of these reforms on the Government's social, economic and environmental policy objectives, including ensuring environmental and social criteria are taken into account in market structures, tendering processes and access regimes; commitments to the National Water Initiative and the Government's response to *A Blueprint for Water Reform in Western Australia* compiled by the Water Reform Implementation Committee.

[1] Section 38 of the Act also provides for the Treasurer to refer to the Authority inquiries on matters related to other industries (i.e. not only the regulated industries of water, gas, electricity and rail).

In undertaking the inquiry, the Authority recognises section 26 of the Act, which requires the Authority to have regard to:

- the need to promote regulatory outcomes that are in the public interest;
- the long-term interests of consumers in relation to the price, quality and reliability of goods and services provided in relevant markets;
- the legitimate business interests of investors and service providers in relevant markets;
- the need to promote competitive and fair market conduct;
- the need to prevent abuse of monopoly or market power; and
- the need to promote transparent decision making processes that involve public consultation.

The Terms of Reference required that a Final Report be presented to the Government by 31 March 2008. However, based on requests for further consultation following the release of the Draft Report, the Authority approached the Treasurer and received an extension for the Final Report until 30 June 2008 (see Appendix 2).

1.2 Review Process

This inquiry has been referred to the Authority under Section 32 of the *Economic Regulation Act 2003* (**Act**). Section 32 allows the Treasurer to refer to the Authority inquiries on matters related to regulated industries (i.e. water, gas, electricity and rail).[2]

The Authority released an Issues Paper in July 2007 and sought input from interested parties.[3] 23 submissions were received.

The Authority released a Draft Report in December 2007 and received 27 submissions. Many of the submissions sought additional information on the recommendation to establish an Independent Procurement Entity and requested that further consultation be undertaken before the Final Report. As such, the Authority sought and received from the Treasurer an extension for the Final Report from 31 March 2008 to 30 June 2008. The extension allowed the Authority to undertake a further round of consultation.

The Authority released a Further Consultation Report on the establishment of an Independent Procurement Entity in April 2008. Five submissions on the Further Consultation Report were received.

The recommendations contained in this report are based on the submissions received throughout the inquiry, consultants reports commissioned by the Authority and the Authority's own analysis.

The Authority presented this Final Report to the Treasurer on 30 June 2008. The Treasurer has then 28 days to table the report in Parliament.

[2] Section 38 of the Act also provides for the Treasurer to refer to the Authority inquiries on matters related to other industries (i.e. not only the regulated industries of water, gas, electricity and rail).

[3] The Issues Paper and all other papers related to the inquiry, can be found at: www.era.wa.gov.au/2/508/46/inquiry_into_co.pm

It is the Government's task to review the Final Report and decide which, if any, of the recommendations to implement. The Authority would be pleased to provide further clarification or assistance as required.

In accordance with section 45 of the Act, the Authority is acting through the Chairman and members in conducting this inquiry.

1.3 Structure of the Final Report

- Chapter 2 provides some background to the inquiry, including:
  - a discussion of the institutional and governmental context;
  - an overview of the benefits of competition and instances where regulation is required; and
  - a summary of the water and wastewater.
- Chapter 3 outlines a set of arrangements to ensure the most effective maintenance of security of water supply.
- Chapter 4 examines third party access regimes.
- Chapter 5 considers water trading matters.
- Chapter 6 discusses Community Service Obligation payment arrangements.
- Chapter 7 looks at alternative industry structures; specifically:
  - the establishment of a multi-utility to provide electricity, water and wastewater services in regional and remote parts of the State; and
  - possible reconfigurations of operations in the South West around Bunbury and Busselton;
- Chapter 8 investigates other matters not mentioned specifically in the Terms of Reference but related to competition. These relate to:
  - retail contestability; and
  - scarcity pricing.

2 Background

This Chapter:

- Provides some context for the inquiry.
- Discusses the role competition can play in delivering products and services such as water and wastewater services.
- Provides an overview of the water and wastewater industry.

2.1 Context

This section describes how the water and wastewater industry has developed over recent decades, including significant changes to the institutional arrangements. It then discusses changes in National and State Government policies. It concludes with a summary of recent developments in the water and wastewater industry.

2.1.1 Institutional Arrangements

Water and wastewater services, like electricity and gas services, were at one time provided by State Governments due to their essential nature and large cost. During the 1980s and 1990s, concerns regarding the appropriate pricing of these services led to the corporatisation of many of these government owned businesses. These businesses were established on a stand-alone basis and were required to operate at arms length from government.

The aim of these reforms was to expose the businesses to more rigorous commercial pressures. A further goal was to establish prices that more accurately reflected the cost of service provision.

In the case of water, pricing reform has occurred through a shift away from a rates-based approach (an annual fixed charge for water often based on land value) to the installation of water meters and usage charging. The pricing of wastewater services has lagged behind that of water with these services still in some states (Western Australia, South Australia and parts of Tasmania) charged on the basis of property values.

2.1.2 Government Policy

In addition to the above changes, governments have maintained an active policy development role at both a national and State level. The national arrangements set the broad policy framework within which water resources are managed.

The two key agencies responsible for implementing national arrangements are the Department of Environment and Water Resources and the National Water Commission. These agencies are addressing matters covered by the National Water Initiative such as:

- over-allocation of water in rural areas;
- urban and rural water pricing;
- water trading;

- water access entitlements; and
- water resource accounting.

In Western Australia, the Department of Water oversees water policy development. The Department of Water is responsible for implementing reforms which have resulted from the inquiry undertaken by the Irrigation Review Steering Committee during 2005. These reforms address matters such as water entitlement systems, water trading and water metering. The implementation of these and other reforms will assist in meeting the requirements of the National Water Initiative.

Other Western Australian agencies involved in water and wastewater matters include the:

- Department of Planning and Infrastructure;
- Environmental Protection Agency;
- Local Governments; and
- Non-Government Organisations.

2.1.3 Recent Developments

The recent drought and imposition of significant water restrictions in many areas of Australia have focussed attention on water and wastewater service provision. States including Queensland, New South Wales, Victoria and South Australia are all in the process of developing desalination plants to address shortfalls in supply. Western Australia is in the process of developing a second desalination plant.

The imposition of water restrictions and the sudden focus on developing alternative source options in the Eastern States has led some to question the institutional and governance arrangements which led to this situation. These include the Productivity Commission and the head of the Commonwealth Treasury, Dr Ken Henry.

The Productivity Commission released in March 2008 a discussion paper which investigated urban water reforms. The discussion paper identified potential benefits from increased competition in the provision of water and wastewater services.[4] Specifically, the Productivity Commission argued for:[5]

- a greater role for prices in signalling water scarcity and to allocate resources;
- removal of artificial impediments to rural-urban water trading; and
- removal of barriers to competition in the supply and retailing of urban water.

The Productivity Commission argued that the potential benefits of a more market based approach to water and wastewater services warranted further investigation.

Dr Henry, at the most recent Ian Little Memorial Lecture, argued for an increased role for markets and competition in the delivery of water services.[6]

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[4] Productivity Commission, *Towards Urban Water Reform: A Discussion Paper,* March 2008.

[5] Productivity Commission, *Towards Urban Water Reform: A Discussion Paper,* March 2008, pg XIV

[6] A copy of the lecture is available at: www.treasury.gov.au/contentitem.asp?NavId=008&ContentID=1351

In addition, there is a growing body of academic literature focussed on water and wastewater provision. Australian academics are at the forefront of this research given the high priority of water in Australia.

2.2 Competition

The application of competition in the provision of goods and services is usually the most effective way to deliver efficient prices and quality services to customers. Competition and competitive pressures exist in situations where there is rivalry between two or more suppliers seeking to secure the business of a customer.

In order to obtain the business of any individual customer, suppliers are under pressure to offer the most attractive product in terms of price, quality and level of service. Even in situations where a market is served by a single supplier, the threat of an additional business entering the market can exert competitive pressure leading to more efficient outcomes for customers.

Economic efficiency

Competition, in whatever form, drives suppliers to continually seek more efficient methods of providing products and services through efficiency and innovation. The effect of competition and competitive pressures in delivering more efficient production and service delivery can be thought of in three ways.

First, competition for customers requires that suppliers seek continually the lowest cost way of producing products and services (productive efficiency). Consider an established supplier selling a given product. If a competing supplier can enter the market and produce and sell the same product at a lower price, the established supplier can expect to lose market share and may be forced out of business. Competition and competitive pressures guide suppliers to continually seek to reduce costs.

Second, competition for inputs among competing suppliers offering alternative products or services encourages and can direct resources to be allocated to where they are most valuable (allocative efficiency). A supplier seeking to use resources in other ways can usually expect to be outbid by competitors seeking higher value uses. This ensures that society as a whole is better off because the limited resources of the economy are being used where they are most valued.

Third, competition compels suppliers to seek new and improved ways of doing things (dynamic efficiency). If a supplier is able to invent a new and cheaper way of manufacturing its product (or create an entirely new product), the supplier stands to benefit by attracting additional customers.

While the overall effect of competitive pressures is to drive suppliers to produce goods and services at least cost, allocate goods and services to where they are most valued and to seek new and improved ways of serving customers, competition is not an end in itself. Rather, competitive pressure is an effective mechanism by which customers receive goods and services at levels of price and quality suited to their needs. Hence, competition delivers outcomes that are in the long term interests of consumers.

Monopoly

However, there are instances where the ability of competition to deliver benefits to consumers is constrained. This failure of the market to deliver benefits to consumers may

be for a variety of reasons. One such example is where a single business, or monopoly, is the only provider of a good or service.

In situations where the monopoly is free from government oversight and/or regulation, it has an incentive to price above the cost of production. A monopoly position can allow businesses to make excess profits or to pad out costs in ways that are beneficial to management. In either case, this leads to the under-provision of the good or service, even where there is a willingness by consumers to pay the 'efficient' cost of service delivery.

Economies of scale and scope

The existence of a monopoly can be for a range of reasons. Government may prescribe that only a single provider of a service exists. Alternatively (and sometimes as a trigger for government prescription), a monopoly may be the most efficient way in which to provide services if large economies of scale and/or scope exist.

- Economies of scale exist where average production costs for a single product fall as output increases.

- Economies of scope are similar to economies of scale but refer to cost savings that result from efficiencies generated by producing a range of similar products or undertaking a variety of related tasks.

Economies of scale or scope can create conditions in which a monopoly provider could, in theory, deliver services at least cost. However, this possibility needs to be weighed against the risks associated with opportunities for pricing above the cost of production and diminished incentives for innovation and dynamic efficiency over time. The theoretical benefits from size or scope economies could, over time, be outweighed by the loss of benefits from innovation.

Markets and market failure

While monopoly can, in a productive efficiency sense, produce products and services highly efficiently, this alone does not ensure that the products and services are those either sought by the market or allocated between consumers efficiently. Markets are capable of achieving technical, allocative and dynamic efficiencies simultaneously.

Competition of itself can in some cases fail to deliver efficient outcomes and can sometimes prove counterproductive. This can occur where business decisions can impact third parties, such as when environmental and public health risks are prevalent. This may sometimes count against the encouragement of competition and markets, though more often requires attention being given to improving the institutional/regulatory environment within which competition operates.

There are also circumstances where, without regulatory or other intervention, competition simply does not work. This arises, for example, where unrestricted consumption leads to over utilisation, such as in the case of access to natural water sources. The nature of price regulation can also lead to circumstances where competitive incentives favour inefficient patterns of investment.

Economic efficiency achieved through competition requires that environmental and other related factors are appropriately brought to account to ensure that all costs and benefits are taken into account (not just direct financial costs).

Water and wastewater industry

In this inquiry, the Authority has examined the potential ways in which competition and competitive pressures can be applied to the water and wastewater industry in Western Australia. The aim has been to explore the opportunities for furthering the positive influence competition and competitive pressures can play in the water and wastewater industry in order to deliver benefits to customers, while being mindful of practical constraints.

The receipt of the Terms of Reference to undertake this inquiry is timely given recent developments in the water and wastewater industry. These developments include:

- revised institutional arrangements and government policies;
- changing climate; and
- the development of viable alternative sources and a range of demand management options.

The increased use of competition in the delivery of services is vital in order to deliver the most appropriate outcomes to consumers.

2.3 Overview of the Water and Wastewater Industry

2.3.1 Nature of Services

Reticulated supply

The water and wastewater industry is commonly thought of in terms of delivery of two services.

- Reticulated water supply (including supply to industry and irrigation).
- Wastewater collection and management services.

At least in urban settings, the emphasis is typically on the delivery of these in the form of network services.

A full consideration of the role of competition in the industry needs to recognise that the emphasis on reticulated network water supply and wastewater services is really focusing on means rather than ends. Ultimate demands that are sometimes met via network water supply systems can be met in other ways.

Alternatives to reticulated supply

Consumers access the services received from the reticulated network in a range of alternative ways. These include:

- buying bottled water;
- installing rainwater tanks;
- installing more water efficient appliances such as low flow shower heads and water efficient washing machines; and

- planting more drought-tolerant gardens.

These alternatives compete for the market that is targeted by the water supply network. Underlying demand is met using a combination of these options.

In some cases, competitive substitutes can be other than potable water (and sometimes other than water). For example:

- Australian urban centres are making increasing use of non-potable recycled water.
- Since the 1950s Hong Kong has relied mainly on seawater delivered through separate pipes for toilet flushing.
- Water use in thermal coal-based electricity generation can be replaced by air or sea water cooling, or by gas and other technologies that require less consumption of water.
- Consumers can shift consumption patterns in favour of a mix of goods and services that requires less water.

Similarly in respect of wastewater services, recent drought experiences have seen a significant shift towards household reuse of grey water. This is turn reduces demand for reticulated wastewater services. In addition, wastewater is now being viewed as a potential resource (including for water supply). In time this could lead to a shift in emphasis from households being seen as demanders of wastewater removal services towards households being seen increasingly as suppliers of a competitive industry input.

Water supply versus water security

Also of crucial importance to this Inquiry is the recognition that there is a crucial demand to be met for the delivery of *water security* services. These services are distinct from water supply services. Future water planning across much of Australia is likely in the future to be driven as much, if not more, by the need to deliver a secure supply capability as by the need to deliver actual water.

The distinction between water supply and security of supply is important. Much of the recent commitment to major infrastructure investments, including the two Perth desalination plants, has been heavily influenced by security considerations.

Demand growth in South West Western Australia can be expected to underpin ongoing needs for supply augmentation. However, care must be taken to ensure that commitment to undertake an augmentation is addressing a water supply shortfall as opposed to a water security shortfall.

This is an important distinction as it is becoming increasingly clear that security services can be delivered without necessarily delivering water. This may in some practical contexts be highly cost effective. So-called ‘readiness options’ that provide for rapid movement to implement new supply if and when needed can be highly cost effective relative to pre-emptively bringing extra water into a market. Similarly, modest water restrictions and other instruments for modifying demand when supply is looking increasingly at risk can play a highly cost-effective role in securing the system.

This recognition of the separation of water supply, wastewater supply and water security services are a key element of this Inquiry and the subsequent recommendations.

2.3.2 Natural Monopoly

The water and wastewater industry is often described as a 'natural monopoly'. A natural monopoly exists in situations where it is cheaper for a single supplier to provide a service or range of services relative to the cost that would be incurred should more than one supplier provide the service or services.

Natural monopolies are often the result of economies of scale or scope in production whereby the average cost of production falls as output increases or the range of outputs increases. This creates a cost hurdle for new entrants. Where more than one supplier already exists, there is an active incentive for mergers and acquisitions to exploit the size/scope economies.

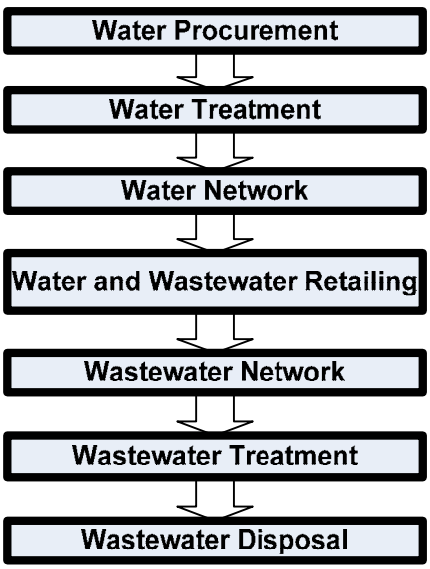
As noted in Chapter 2.2, the fact that a monopoly is natural does not imply that it is efficient. This is especially the case where there is on-going scope for innovation and/or scope for sustaining prices above costs of production and delivery. In these (usual) circumstances, there is a trade-off between competing sources of efficiency for customers. The trade-off is between size/scope economies and dynamic efficiencies.

Natural monopoly in the water and wastewater industry

In the water and wastewater industry, size and scope economies flow from the significant cost associated with installing infrastructure such as pipe networks and the relatively low cost of serving additional customers. In such instances, it is typically considered that duplication of the network is uneconomic and that it is therefore cheaper for a single entity to provide the service. Other industries often considered to exhibit the characteristics of natural monopolies include electricity and gas networks.

Natural monopoly services have historically been provided by vertically integrated businesses often supported by legislation. That is, a single business is empowered to undertake all tasks associated with providing the service. A vertically integrated water and wastewater business is responsible for the provision of all elements of the water and wastewater services supply chain. This supply chain can be represented as shown in Figure 2-1.

Figure 2-1 Water and Wastewater Supply Chain



Economies of scope that exist due to similarities and overlaps between these segments of the supply chain can support a vertically integrated business with sole responsibility for the delivery of the service.

However, not all elements of the water and wastewater supply chain preclude duplication and therefore not all of these exhibit the characteristics of a natural monopoly. The only elements of the supply chain that exhibit natural monopoly characteristics are the water and wastewater pipe networks. The introduction of competition and competitive pressures into the remaining non-natural monopoly segments of the supply chain, such as water procurement, water and wastewater treatment and retail services, is feasible and could potentially lead to new and better ways of operating and lower prices for customers.

2.3.3 Competition and the Water and Wastewater Industry

In considering the introduction of competition into these elements of the water and wastewater network, it is necessary to be mindful of the many practical matters which affect the industry. For example, if adverse impacts on third parties, including the environment, are to be avoided in the use of aquifers as a source of bulk water, rights to access the water have to be clearly assigned and enforced.

Another example is the role of water in the creation of a healthy, disease-free environment, which provides a significant benefit to the community as a whole. As such, it is not considered desirable to turn off the supply of water should someone be unable to pay for the service. A further consideration is that, in the unlikely event that it is deemed appropriate, there is often no practical way to exclude customers from the use of the wastewater service.

The introduction of competition into the water and wastewater networks requires careful consideration of all aspects of the industry. These considerations need to include matters that relate to the water and wastewater industry specifically, as well as other matters such as government policy and environmental, social and economic concerns.

In addition, the benefits and costs of altering the existing Western Australian water and wastewater industry structure need to be considered carefully with regard to the potential for and impacts of, changes to existing economies of scale and scope within the sector as well as one-off transitional costs. Only once all these issues have been addressed can decisions regarding alternative approaches to the delivery of water and wastewater services be made.

Table 2.1, based upon that developed in the Issues Paper, highlights some of the ways in which competition can be introduced in the water and wastewater supply chain.

Table 2.1 Conceivable Forms of Competition in the Water and Wastewater Supply Chain

Supply Chain	Is competition conceivable?	Examples of competition
Water procurement and alternative ways of ensuring security of supply is achieved	Yes	A bulk water market could be established with competing suppliers of bulk water. This could be facilitated by third party access. Alternatively, an independent entity could tender for a certain volume of water, level of security of supply, or for a specific project. Demand Management alternatives also provide a way of ensuring security of supply is achieved and can include options such as installing water efficient showerheads, installing recycling systems, water buy backs etc.
Water treatment	Yes	An independent entity could tender for a specified project or outcome.
Water network	No	If the network is a natural monopoly, which it is likely to be within the constraints imposed by non-network substitutes, then by definition competition is not possible, although by-pass by large users is possible. However, third party access to the network could facilitate competition in the bulk water and retail/trading markets.
Water and wastewater retailing	Yes	Trading and retail competition could be established. Alternatively, a comparative competition regime could be introduced with retailing/distribution activities separated geographically. In addition, the service provision for an entire market could be put out to tender.
Wastewater network	No	Competition is unlikely given the natural monopoly nature of the network, although by-pass by large users is possible. However, third party access could facilitate competition in the wastewater treatment/disposal market or the retail/trading market.
Wastewater treatment	Yes	Service providers could compete to treat wastewater for either disposal or recycling (via third party access). Alternatively, an independent entity could tender for a specified project or outcome.
Wastewater disposal	Yes	There is already, to some extent, a market for treated wastewater by-products, e.g. for use in the agricultural sector.

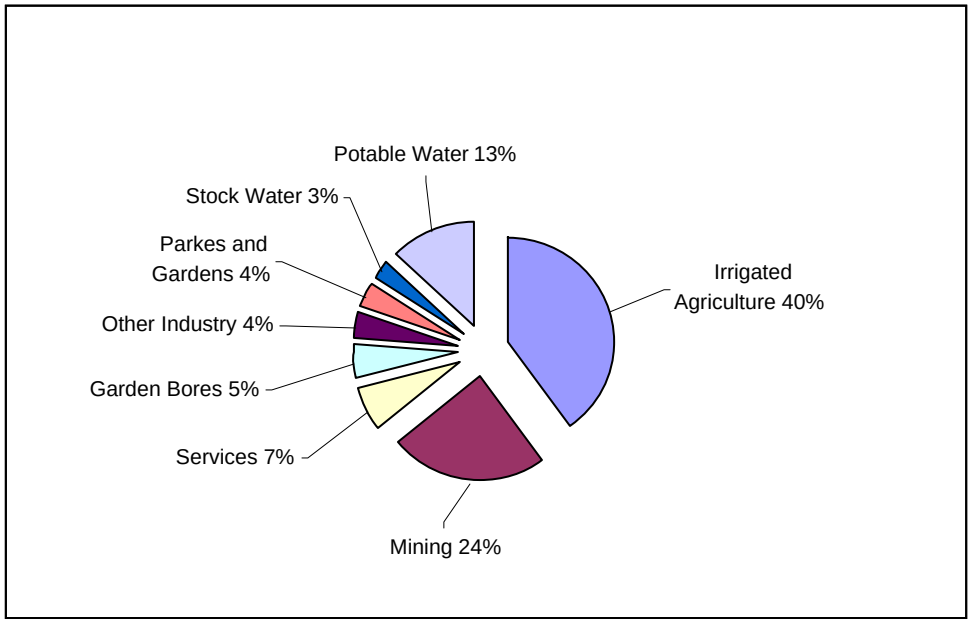
The aim of introducing competition is to provide benefits to consumers in the form of the low cost provision of services of appropriate quality. In a competitive market, the price of a good plays a dual role.

- Price gives an indication to consumers of the cost of the good provided.
- Price provides information on consumers willingness to pay for goods and thereby signals to the market the potential for new producers to enter.

2.3.4 The Structure of the Water and Wastewater Industry

Not all water is the same. There are differences in the quality and location of water which affects its possible uses. Figure 2-2 shows the breakdown of water usage in Western Australia.[7] 87 per cent of all water used is for non-potable purposes with potable water (that treated to drinking water standard) accounting for the remaining 13 per cent.

Figure 2-2 Western Australia Water Usage



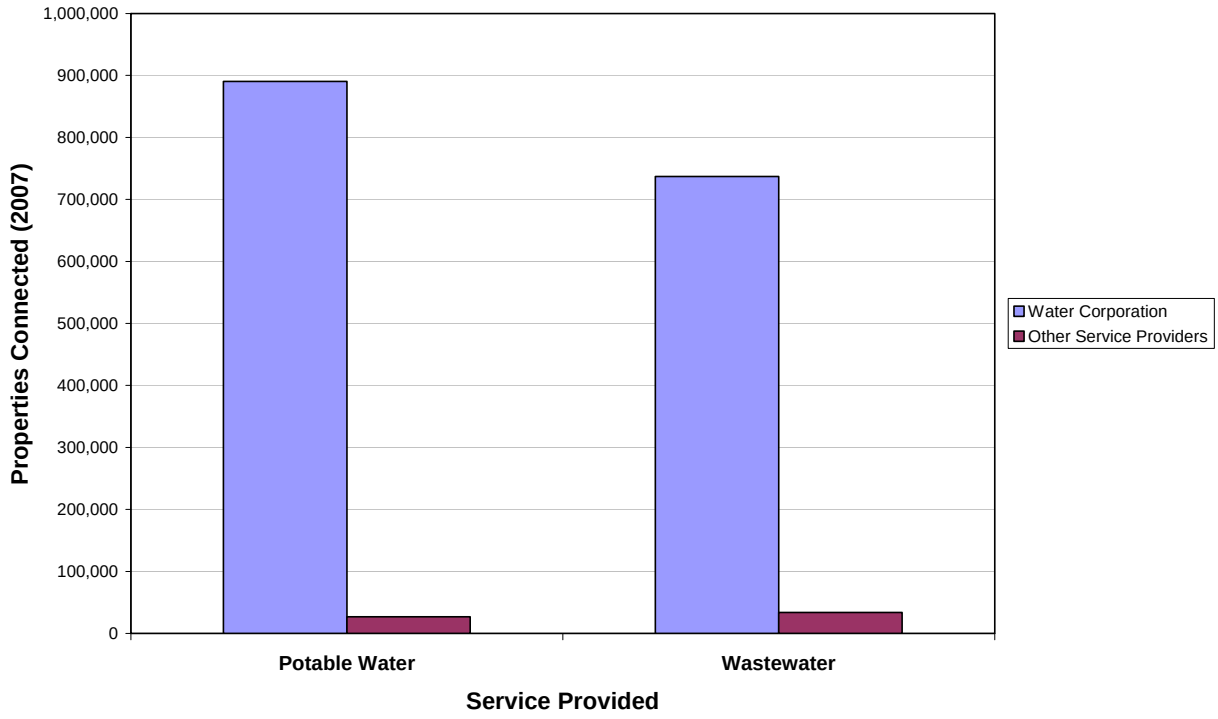
Source: Irrigation Review Steering Committee

The supply of water and wastewater services in Western Australia is undertaken predominantly by monopoly service providers. The provision of potable water and treatment of wastewater in Western Australia is dominated by the Water Corporation (**Corporation**). The Corporation serves the major metropolitan areas of Perth and surrounds as well as the majority of regional centres and towns. In total, the Corporation provides 97 per cent of potable water and wastewater services (see Figure 2-3). Other water service providers include Busselton Water, AQWEST, which serves Bunbury and a variety of local governments, mining towns and self supply connections.[8]

[7] Figure 2.2 is based on information contained in Irrigation Review Steering Committee (July 2005), *State Water Strategy – Irrigation Review Final Report,* , p5. This data is also referred to in the Water Corporation submission on the Issues Paper, p28.

[8] Appendix 3 contains a more detailed description of the Water Corporation, Busselton Water and Aqwest.

Figure 2-3 Provision of Potable Water and Sewerage Services to Connected Properties in WA

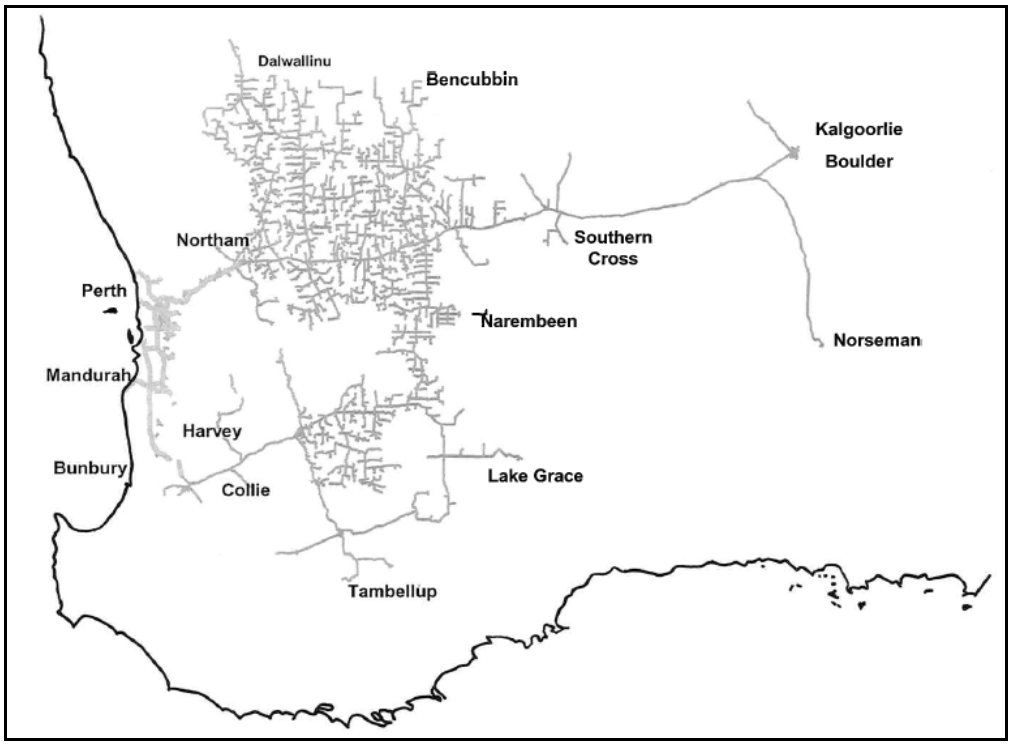


The supply of potable water and provision of wastewater services occurs in two distinct regions - the interconnected system in the South West of the State and geographically separate regional and remote non-interconnected systems.

2.3.4.1 Integrated Water Supply Scheme

The Integrated Water Supply Scheme (**IWSS**) provides potable water to approximately three quarters of all people in Western Australia. The IWSS supplies water to towns in the South-West from Mandurah to North of Perth. The IWSS also provides water inland around the Perth hills and to towns along the Goldfields pipeline to Kalgoorlie. Figure 2-4 shows the area served by the IWSS.

Figure 2-4 The Integrated Water Supply Scheme



Source: Corporation

Water within the IWSS is supplied from a range of sources and at a variety of costs as shown in Table 2.2.

Table 2.2 IWSS Supply Sources 2006-07

Source	Gigalitres	Operating Costs[9] ($/kL)
Surface Water	111	0.14
Ground Water	168	0.19
Desalination	18	0.51[10]
Water Reclamation[11]	4	0.42
Total	**301**	**0.19[12]**

Source: Corporation

[9] Operating costs are those costs incurred in producing the given volume of water excluding capital costs.

[10] It should be noted that the desalination plant was only operational for part of the year. It has an annual capacity of 45 GL. The average operating cost when operating at full capacity is expected to be $0.51/kL.

[11] Reclaimed water is not used in the IWSS. Rather it is used for fit-for-purpose requirements and therefore offsets the use of additional scheme water.

[12] Weighted average of operating costs.

2.3.4.2 Regional and Remote Regions

Potable water services to regional and remote non-connected systems in WA are provided almost exclusively by the Corporation. Other potable water service providers (AQWEST, Busselton Water, Hamersley Iron and Rottnest Island) supply only four per cent of regional connected properties, with the remainder supplied by the Corporation.

Sewerage and/or non-potable water services are provided by another 24 service providers in regional areas (primarily regional shire councils). 97 per cent of regional customers receive their sewerage services from the Corporation.[13] The non-potable water services provided by the regional service providers are largely for the recycling of wastewater produced by wastewater treatment plants, which is used for purposes such as irrigation of public green spaces.

Table 2.3 provides the list of current license holders.

In addition to licensed service providers, water and sewerage services to individual properties are often supplied privately in regional areas. This is often through the use of:

- rainwater tanks;
- farm dams;
- private bores; and
- septic tanks.

For many regional systems, regulated prices for water and sewerage services do not cover the cost of providing these services. To cover the difference, the Corporation receives Community Service Obligation (**CSO**) payments from the Government. In 2006/07, CSO payments were approximately $370 million.

[13] Other non-potable water and sewerage service providers apart from Water Corporation are the City of Kalgoorlie-Boulder, Hamersley Iron, Rottnest Island Authority, Gascoyne Water Services, Ord Irrigation Cooperative and 19 regional shire councils.

Table 2.3 Licence Holders for Water, Sewerage, Irrigation and Drainage Services in Western Australia (2007)

Licence Holders	Licence Type				
	Potable Water Supply	Non-Potable Water Supply	Sewerage	Irrigation	Drainage
Aqwest - Bunbury Water Board	✓				
Busselton Water Board	✓				
Hamersley Iron Pty Ltd	✓		✓		
Rottnest Island Authority	✓		✓		✓
Water Corporation	✓	✓	✓	✓	✓
City of Kalgoorlie Boulder		✓	✓		
Gascoyne Water Services		✓		✓	
Harvey Water (SWIMCO)		✓		✓	
Ord Irrigation Cooperative		✓		✓	
Preston Valley Irrigation		✓		✓	
Shire of Brookton		✓	✓		
Shire of Coolgardie		✓	✓		
Shire of Dalwallinu		✓	✓		
Shire of Denmark		✓			
Shire of Dowerin		✓	✓		
Shire of Dumbleyung		✓	✓		
Shire of East Pilbara		✓	✓		
Shire of Gnowangerup		✓	✓		
Shire of Goomalling		✓	✓		
Shire of Jerramungup		✓	✓		
Shire of Kent		✓	✓		
Shire of Koorda		✓	✓		
Shire of Lake Grace		✓	✓		
Shire of Moora		✓	✓		
Shire of Morawa		✓	✓		
Shire of Northampton		✓			
Shire of Ravensthorpe		✓	✓		
Shire of Victoria Plains		✓	✓		
Shire of Wickepin		✓	✓		
Shire of Yilgarn		✓	✓		

Source: Economic Regulation Authority

3 Procurement of Supply Sources and Demand Management Options

3.1 Terms of Reference

The Terms of Reference required the Authority to consider ways in which to enhance:

- the efficiency of future water source procurement (and other significant capital investment) processes, including issues associated with current market structures and mechanisms, such as competitive tendering models, and determining the trigger conditions for committing to the acquisition of a new source.

3.2 Findings and Recommendations

The Authority makes the following recommendation.

Recommendation

1) An Independent Procurement Entity be established with responsibility for ensuring least expected cost balancing of supply and demand within the Integrated Water Supply System subject to the constraint of maintaining security of supply at a level set by the Government.

The Authority has identified a range of shortcomings with the current arrangements for maintaining supply security and has not been convinced that the enhancements proposed by the Corporation will be effective. The shortcomings include:

- Centralised coordination without sufficient checks and balances.
- An unclear delineation of roles and responsibilities.
- A lack of opportunity and incentive for the private sector to develop alternative innovative supply and demand management options.

The Authority has considered in detail the nature of these shortcomings and been mindful of the characteristics of the water industry which indicates that some form of centrally coordinated approach is necessary at this time. The Authority has concluded that the most appropriate way forward is to establish an Independent Procurement Entity (**IPE**) to manage the procurement of supply and demand management options.

The IPE would be established as a statutory authority and would have the explicit objective of ensuring supply security is maintained at least expected cost within policy and regulatory constraints. In performing this function, the IPE would consider costs in terms of the cost of providing services (as well as the cost of any restrictions) and wider societal costs in relation to environmental and social costs and risks. In broad terms, the IPE would:

- Receive from the Government a supply security requirement.

- Subject to this security requirement, identify future supply shortfalls and seek ways to meet these shortfalls via supply augmentations and demand management options developed by the private sector and Corporation.

Competition between the Corporation and various private sector proponents to provide source and demand management options would ensure the supply/demand balance was maintained at least cost.

The Authority has taken care to incorporate the Corporation's proposed procurement arrangements within the IPE model. Therefore, adoption of the IPE presents no downside risk. However, the IPE model has the opportunity to identify innovative lower cost options from the private sector and therefore has the potential for significant upside benefits in terms of reduced water bills for customers (without compromising security of supply).

The development of the second desalination plant provides an opportunity to embed the new institutional arrangements at the time when there is a significant buffer of supply over demand. The Corporation's current activities in investigating alternative options for the future (including catchment management, mine-dewatering, the second stage of the Kwinana Wastewater Reuse Project) and the longer-term Water Forever project, indicate the ongoing nature of the IPE's work. There is also a need to ensure that existing (and pending) options are operated at least expected cost.

The IPE model is similar in many respects to the model adopted in South East Queensland where an entity separate from the network provider has been established to manage source procurement and demand management. Similarly, the IPE model has parallels with the independent Reserve Bank, but instead of achieving a target inflation rate, the IPE would achieve the Government's target level of water security.

The IPE is also comparable with the Independent Market Operator (**IMO**) in the Western Australian Wholesale Electricity Market.

The establishment of the IPE would create a single agency with responsibility for managing all water supply and demand management options. These functions are currently dispersed between the Corporation, the Department of Water and Government Ministers. As such, there are sizable coordination benefits from the introduction of an IPE.

The following four boxes provide a detailed description of the roles of the:

- IPE;
- Corporation;
- private sector; and
- Department of Water (**DoW**).

Box 1 Roles and Functions of an Independent Procurement Entity

- The IPE would be an independent statutory authority funded by customers via water tariffs.
- The IPE would adopt an 'options' approach to achieve security of supply at least expected cost.
- The Minister would determine the security requirement based on advice from the IPE, DoW and Corporation. The IPE's advice would include analysis of the marginal costs of additional supply and demand options relative to altering the security requirement.
- The IPE would identify future possible supply shortfalls. This decision would be based on a detailed source timing model. The model would be made available freely allowing the private sector to make judgements regarding the likely need for future options.
- Once the IPE had concluded that a future shortfall was possible, it would seek proposals from the Corporation and the private sector. The IPE would conduct a degree of due diligence on the prospective options and fund the investigation and approvals for the most promising options (potentially excluding the Corporation's option if other more cost effective viable alternatives were proposed). This funding of investigation and approvals of different options would make explicit the payments for the work currently undertaken in-house by the Corporation.
- The IPE would then be responsible for identifying a need to actually acquire an additional source(s) or demand management option(s) and would seek bids on the prospective options identified previously. In a case where the Corporation had been successful in gaining funding for proving up its source, the approvals would be made public to allow the private sector to develop alternative proposals. If no alternative proposals were forthcoming, the IPE could require the Corporation to undertake a process similar to its current 'prequalification' process.
- The IPE would then assess and select the successful bid(s). The assessment process undertaken by the IPE would be consistent with the State Sustainability Strategy (2003), as the IPE would base its decisions on the project that has greatest total net benefit to the community. As part of this assessment, the IPE could draw on advice from the Corporation or others as it deemed appropriate.
- The IPE would continually reassess its portfolio of options to ensure the least expected cost of maintaining supply as well as security of supply is achieved.
- Once the successful bidder(s) has been identified, specific technical and operational negotiations would take place between the Corporation and the successful bidder. The IPE would oversee this process.
- The IPE would take over responsibility from the DoW and Corporation for funding and approving existing demand management programs such as restrictions, rebates and programmes such as the Corporation's 'WaterSmart' project. The IPE would also oversee the use of price as a demand management tool.[14]
- The IPE would be responsible for developing annual source operating plans, subject to pre-existing contracts. This would be necessary to ensure confidence that all options are operated in an impartial and competitively-neutral manner.
- The IPE would be funded by water customers through tariffs (with oversight by the Authority). This is consistent with the current arrangement where the Corporation recovers its source development and demand management costs from customers through water tariffs.[15]

[14] The Authority would continue to determine the Corporation's revenue requirement. The IPE would then be responsible for determining prices, subject to any Government social policies aimed at ensuring capacity to pay. Pricing is considered in detail in Section 8.4.

[15] However, the DoW's demand management activities would now also be funded by customers.

Box 2 Roles and Functions of the Corporation

- Upon establishment of the IPE, the Corporation could assist with the development of the source timing model. This is envisaged as incorporating existing Corporation modelling within a framework that more explicitly and transparently recognises the value of flexible readiness options in which strategies are formally developed to cost effectively deal with a wide range of possible future inflow scenarios. Greater transparency in approach could encourage private water providers to innovate in ways suited to delivering a least cost strategy reflective of the uncertainties and risks that need to be managed.
- The Corporation, like any other potential water provider, would submit to the IPE a proposal regarding potential future sources or demand management options.
- If the Corporation's proposal(s) was successful, the IPE would provide the Corporation with funding to prove-up the option(s).
- For any Corporation proposals that proceed to the approval stage, the approvals would become public property that could be utilised by the private sector as it develops its options. In the event that the private sector did not wish to take up these approvals and no other appropriate private sector options were forthcoming, the Corporation would undertake a 'prequalification' procurement process similar to the one currently underway for the Southern Seawater Desalination Plant.
- The Corporation would provide advice to private sector proponents regarding any integration costs of their proposals. The Corporation would have no conflict of interest as it would not own future sources.
- The Corporation could also assist the IPE with the development of the annual system operating plan. However, final sign-off of the plan would reside with the IPE which would need to assess its implications for source and operating costs as well as its potential impact on alternative supply and demand options.

Box 3 Roles and Functions of the Private Sector

- The private sector would have two ways of providing options.
- First, once the IPE had identified a future possible shortfall in supply, a private sector proponent could seek funding from the IPE to prove-up a source or demand management option and gain the necessary approvals. If the source or demand management option passed the due diligence test of the IPE, the private sector proponent would then be able to offer the option to the IPE once the IPE identified an actual need to acquire an option.
- Second, a private sector proponent could wait until the Corporation (if the Corporation was successful in gaining funding from the IPE) obtained the necessary approvals associated with its preferred source and released these publicly. Based on the approvals, the private sector proponent could design a possible source for submission to the IPE. Alternatively, the private sector could enter any prequalification process run by the Corporation.
- The private sector bids would be assessed by the IPE.
- To ensure the appropriate comparison between bids, private sector bids would have to be inclusive of any integration costs. This information could be verified by the Corporation.

Box 4 Roles and Functions of the Department of Water

- The role of the DoW is to ensure the water resources of the State are used sustainably. It would do this by finalising Water Allocation Management Plans and through its role in water licensing. The DoW should undertake these functions in such a way as to not adversely impact on the development of a competitive market.

Water Allocation Management Plans

- Water Allocation Management Plans identify the available water resource for consumptive purposes.
- These plans should be completed as a matter of urgency

Water licensing

- Water Access Entitlements grant control of a water resource to an individual or entity. The DoW should issue these licences by way of neutral auctioning processes to ensure they are granted to the user who values them most.
- The DoW should monitor water trades to ensure they meet any environmental requirements.

3.3 Discussion

The traditional approach for ensuring security of supply has been for a government agency to manage the procurement of additional supply sources. The focus of these agencies has typically been the procurement of additional large source options such as dams. In times of drought, restrictions have been implemented to curb water use.

Commencing in the mid 1990s, government agencies were corporatised and established as Government Owned Enterprises with the intention of creating more commercially focussed organisations. However, there remain opportunities to increase further the commercial focus of these organisations and their incentive to ensure least expected cost security of supply.

Recent years have also seen the development of a wide variety of alternative source options. Supply from rainfall dependent sources has become more uncertain. Rainfall independent sources such as desalination plants and recycled water technologies have been developed. Alternatives such as catchment thinning (to increase runoff into catchments) and water trading have also been explored.

In addition to these supply side responses, measures which reduce the overall demand on the system have been increasing in prominence. Demand side responses include measures such as rebates for more water efficient appliances, awareness and behavioral change programs, as well as traditional restriction regimes. Some of these measures (such as water efficient appliances) seek to induce a permanent shift in demand levels. Others, such as restrictions, are directed at lowering demand when the value of avoided consumption is highest. These options work in different ways and need to be assessed in a way that recognises the different value of the water savings achieved.

The Authority considers that the primary challenge for the water and wastewater sector is to establish a set of institutional arrangements that deliver supply security for least expected cost. The Authority has concluded that this can best be achieved in Western Australia by establishing an IPE.

The remainder of this Section discusses the:

- Necessary features of an effective water procurement model.

- Current arrangements.

Section 3.4 then discusses the alternative procurement models considered by the Authority.

3.3.1 Necessary features of an effective procurement model

The Authority has identified three necessary features of an effective procurement model. These features are discussed below and are used throughout the remainder of this Chapter as a framework against which to assess various procurement models.

Centralised coordination

The Authority has identified that centralised coordination of a market for bulk water is necessary in the short to medium term. In most markets price signals indicate the need for additional investment. However, the typical decentralised model is inappropriate at present in the water and wastewater industry as a competitive market would take time to develop (including the development of retail contestability and an access regime). In the meantime incumbent operators would have the ability to use their market power.

In addition, the development of a competitive market would require substantial sophistication to deal effectively with the joint needs of water, wastewater and water security services.

For example, electricity markets have evolved sophisticated ways of meeting both supply security requirements as well as delivering actual supply. This is often witnessed through the development of higher unit cost power from a peak or intermediate load station as opposed to the development of additional base load capacity. The combination of options represents the least expected cost way of ensuring both supply security and delivery of supply. With climate change and drought uncertainties, there would be the need for analogous development in water markets before a decentralised approach could be adopted successfully.

The characteristics of an effective centrally coordinated approach are that:

- A clear security requirement is determined by an external body (such as the Government).
- The levers for achieving security of supply are ideally held by a single entity.
- Procurement of supply sources and demand management options is at least expected cost. This requires:
  - institutional and regulatory arrangements that ensure appropriate incentives to minimise costs across suppliers, users and wider community interests, including the environment; and
  - the adoption of an ‘options’ modelling framework to manage a flexible portfolio of supply and demand management options.
- Technical and operational linkages between sources and networks are recognised.

Clear delineation of roles and responsibilities

An effective market for bulk water requires a clear delineation of roles and responsibilities between the:

- Government;
- Government department responsible for water resource management;
- environmental regulator;
- Government department responsible for planning;
- economic regulator;
- water utility; and
- private sector.

Clarity of roles helps to ensure least expected cost security of supply is achieved in a manner consistent with wider environmental and social objectives.

The creation of a competitive business environment

A competitive business environment is necessary to ensure that as many innovative options as possible are identified and developed. A competitive business environment requires:

- A transparent and independent assessment process. This implies that:
  - the grounds upon which alternative proposals are assessed are clear;
  - conflicts of interest, real or perceived, are not present; and
  - political risk is not present.
- The creation of an even playing field for all existing and prospective participants. This requires that:
  - all parties have access to the same information, including detailed supply and demand modelling, as well as modelling and information regarding integration costs; and
  - options are not subject to competitive disadvantages.
- Relative certainty regarding all factors that influence supply and demand, such as demand management programs.

3.3.2 Current approach

3.3.2.1 Description

The approach adopted currently by the Corporation to maintaining security of supply is to determine the need for an augmentation on the basis of assumptions about dam inflows, groundwater abstractions and demand. For example, the Corporation has based its requirements to proceed with the next major source on the view that:

- future inflows will be no more than those experienced in recent years and could be substantially less;
- abstraction from the Gnangara Mound will be lower than previously permitted; and
- per capita demand will be held at the currently restricted levels.

Once the timing and volume of a major source is identified, the Corporation investigates alternative options and commences the regulatory approval processes. The competing sources are then identified and costed, after which the Corporation seeks Government endorsement for one of the projects. Under section 49 of the *Water Corporation Act 1995*, the Corporation is required to have the shareholder minister (currently the Minister for Water Resources), with concurrence from the Treasurer, approve the funding of major projects.

The Corporation then goes out to tender within a 'Design, Build, Operate' framework that establishes an alliance between the Corporation and a private sector business. The private sector also has the ability to suggest an alternative option to that developed by the Corporation.

The Corporation's approach has been successful in avoiding the need for total sprinkler bans as have occurred in most other major cities in Australia in recent times. The Corporation has also been receptive to proposals to develop non-traditional sources, such as the water trade with Harvey Water.

The approach adopted by the Corporation is similar to that adopted throughout Australia. In the past, this approach has worked relatively well in Western Australia with the Corporation often cited as an example of an effective planner.

3.3.2.2 Discussion of the current approach

The current approach is discussed below using the framework of an effective procurement model developed in Section 3.3.1.

Centralised coordination

While the current approach can be characterised as a centrally coordinated approach, the Authority has a number of concerns.

Clear security requirement

There is no clear security requirement stated or process in place to determine such a requirement. Under the current approach, the Corporation procures additional options to meet a self determined security requirement. The requirement is based on judgements by the Corporation regarding the risk its consumers are willing to bear in relation to possible sprinkler bans.

The Authority considers that a process should be developed whereby the Government specifies a system security requirement. Importantly there is also a need for the Government to be made aware of the potential cost implications of such a requirement.

A modest modification to the level or form of the requirement could deliver a similar security outcome at much lower cost. As such, a feedback loop is important and could be seen as emulating the process an efficient market would develop to converge simultaneously on the levels of demand for both water supply and water security.

Factors that influence supply and demand reside with a single entity

Under the current arrangements, responsibility for achieving security of supply is dispersed amongst the Corporation, the DoW and the Government. For example:

- The Corporation sources additional supply options and undertakes some demand management work.
- The DoW oversees rebates and other demand management programs.
- The Government decides on sources to be developed and determines prices.

It is important that the levers for achieving security of supply are held by a single entity to ensure coordination of all possible options and subsequently least cost provision of services.

Least cost procurement – institutional and regulatory arrangements

There is a lack of incentive for the Corporation to minimise costs under the current arrangements. Section 30 of the *Water Corporation Act 1995* states that:

> The corporation in performing its functions must —
>
> (a) act in accordance with prudent commercial principles; and
>
> (b) endeavour to make a profit, consistently with maximizing its long term value.

Despite these requirements, a lack of incentive stems from three areas.

First, much of the Corporation's operations, such as the water and wastewater network, exhibit the characteristics of a natural monopoly. In addition, there is little to no competition from rival businesses in the remaining segments of the supply chain. As such, the Corporation faces a reduced incentive relative to a business operating in a rivalrous market to seek productive and dynamic efficiencies (see Sections 2.2 and 2.3) and therefore minimise costs.

Second, the Corporation is not subject to an effective regulatory regime. Under the current arrangements, expenditures of the Corporation are not subject to a technical prudence and efficiency review by an independent auditor. No independent oversight of incurred costs is undertaken before these costs are included in the asset base as part of the annual price adjustment process. However, expenditure is subject to sign-off by the Expenditure Review Committee of Cabinet. In addition, the Authority does review its capital planning process as part of triennial reviews of tariffs.

Third, all expenditure approved by the Government is recovered entirely from customers via tariffs. The Corporation therefore does not face any risk associated with inappropriate expenditures as these costs are passed directly through to customers. The Authority considers this insulation from risk reduces the incentive to minimise costs.

The effect of a lack of competitive pressures, a lack of a comprehensive prudence and efficiency review of expenditures and that all costs are recovered from customers, is to reduce much of the incentive from the Corporation to minimise costs. Rather, the Corporation has an incentive to adopt conservative assumptions and overestimate required expenditure as it is insulated from any costs it incurs. This effect is sometimes referred to as 'gold plating'.

Least cost procurement – options modelling framework

A modelling framework is necessary to identify future shortfalls in supply and therefore plan for the introduction of alternative options. An options modelling framework involves explicitly taking into account uncertainty and reassessing decisions regarding the introduction of alternative options as additional information comes to hand.

In the case of maintaining supply security in the water industry, uncertainty exists due to factors such as drought and climate change (demand can be forecast with a reasonable degree of certainty). Applying an options framework would involve taking this uncertainty explicitly into account when deciding on future supply source and demand management options.

For example, it may involve incurring significant costs in the short-term in return for deferring an expensive large irreversible project that has a possibility of being under-utilised. Furthermore, it may entail altering the time at which options are developed as additional information comes to hand. The adoption of an options modelling framework supports a strategy to deliver security of supply at least expected cost. This cannot be achieved using a less flexible approach to planning and implementation.

Water utilities will always review and adjust strategy over time allowing them to capture some of the benefits of an options approach. However, this is not the same as adopting a full options approach and planning from the start for strategies to exploit uncertainty. Such strategies could include active investment in substantially higher unit cost strategies because of their extra, and more cost competitive, insurance value.

The Authority has considered in detail the source development model in use by the Corporation, has commissioned a consultant to analyse the methodology adopted by the Corporation and has engaged in a continuous dialogue with the Corporation regarding its approach to procurement.[16] Based on the information gathered during this process, the Authority does not consider that the current approach to modelling can be classified as a full options approach. This matter is discussed further in Section 3.4.4.

Technical and operational linkages

The Corporation is responsible for the operation of all source options as well as the water and wastewater reticulation networks. As such, the technical and operational linkages between sources and networks are addressed adequately under the current approach.

Clear delineation of roles and responsibilities

The Authority does not consider that the current delineation of roles and responsibilities is sufficiently clear to achieve least expected cost security of supply.

Government

Ideally, the Government's role would be limited to protecting the broader interests of the community by specifying a security requirement (for example, the acceptable probability of having to experience total sprinkler bans. This decision would be based on advice regarding the trade-off between the risk of sprinkler bans and additional cost. There should be no need for any further involvement for Government (apart from any social

[16] The Draft Report contains a more detailed discussion of options modelling. In addition, a report commissioned from ACIL Tasman entitled 'Frameworks for Water Source Procurement in WA' discusses the Corporation's approach and how it compares to an options approach. This report is available on the Authority's web site.

policies related to capacity to pay) assuming appropriate institutional and regulatory arrangements are in place.

However, under the current approach the security requirement is not clear. For example, different underlying security assumptions were applied on the two desalination decisions.

Government department responsible for water resource management

The Government department responsible for water resource management should have as its primary role the establishment of a regulatory framework that ensures the State's water resources are used sustainably. The department should allocate water via 'neutral' processes, such as auctioning, to ensure water is allocated to the highest value use. In addition, the department should monitor use to make certain the resource is being used in accordance with any licence conditions governing its use.

In Western Australia, the Department of Water is the Government department responsible for water resource management. The legislation governing the operation of the DoW is currently being reviewed, with the role of the DoW in relation to water procurement likely to change. The Authority has identified a number of current and prospective roles of the DoW which may result in the DoW undertaking functions in addition to that of ensuring water resources are used sustainably. These functions may inadvertently be counterproductive to the promotion of competition and therefore the establishment of the most effective water procurement and allocation model. These roles relate to:

- The manner in which Water Allocation Management Plans are formulated, specifically:
  - The approach adopted whereby water supplies are reserved for public suppliers. The risk the DoW faces by disallowing alternative users the opportunity to seek an access entitlement is that it may inadvertently reserve a water resource that has a higher value alternative use.
  - The unequal treatment of existing users. Imposing differing use and restriction regimes on different users may create distortions in water use. For example, on the Gnangara Mound, the DoW has reduced the Corporation's entitlement while leaving other entitlements unchanged. Alternatively, the required reduction could be achieved via a buy back or an equal reduction in all users allocation combined with an effective trading regime. These approaches would ensure the least cost reduction in use.
- The issuing of water licences. The DoW currently requires a licence holder to demonstrate they have used their entitlement before allowing a trade. While this may be considered fair because it prevents windfall profits accruing to existing licence holders, denying such trades will restrict potential trades and lead to the inefficient use of water. It could also deal unfairly with those holding entitlements apparently 'excess to needs'. Possible reasons for holding an excess reserve include that it may offer cost effective insurance against either inflow risks and/or risks of changes to allocation policies. Likewise, reallocating this water administratively will be less efficient than having it reallocated via a trading regime based on commercial decisions.

- The approach taken to source development plan approvals. The DoW will require a service provider to demonstrate, among other things, that it has targets for per capita water use and that it has demand management measures to achieve these targets. The problem with imposing arbitrary targets is that it may lead to either

under or over investment in water efficient technology and distort the options adopted to meet demand and hence increase costs.

These concerns are discussed in additional detail in Section 5.3.2.

Environmental regulator

The role of the environmental regulator is to assess development proposals.

In Western Australia, the Environmental Protection Agency (**EPA**) undertakes Environmental Impact Assessments. The EPA is not an environmental regulator as such as it only provides advice to the Government. The Minister for the Environment issues approvals. Leaving decisions to the Minister for Environment is likely to introduce political risk.

Government department responsible for planning

The role of the Government department responsible for planning is to make land use planning decisions to protect water catchments in accordance with the objectives of the department responsible for water resources and the environmental regulator.

In Western Australia, this function is undertaken by the Department of Planning and Infrastructure (**DPI**). At present, the DoW identifies potential future public drinking sources. The DPI then implements planning policies to protect these potential future sources.

Economic regulator

Economic regulators may determine the tariffs that can be charged by utilities such as local water utilities.

The Authority is not an economic regulator for the water industry. However, the Authority, when requested to do so, provides recommendations to the Government on water and wastewater tariffs. In making its recommendations on the total amount of revenue that the Corporation should earn, the Authority reviews the appropriateness of the Corporation's costs, including its proposed source development schedule, to establish whether it is prudent. In addition, the Authority provides advice on the structure of water tariffs.

Water utility

Water utilities are responsible for providing water-related services to customers. Traditionally, water utilities have also been responsible for identifying and developing source and demand management options. It is important that their involvement not negatively impact on the creation of a dynamic business environment in parts of the water system that are potentially competitive (including bulk water supply).

The Corporation is the water utility in the IWSS. However, the approach adopted by the Corporation to achieving security of supply may be having a negative impact on the creation of a competitive business environment. This is discussed in further detail below.

Private sector

The role of the private sector is to identify and develop source and demand management options.

Under the current approach, there has been only one significant initiative by the private sector accepted by the Corporation (the trade with Harvey Water). Otherwise, private sector involvement has been in terms of alliances with the Corporation on previously identified Corporation initiatives.

Creation of a competitive business environment

A competitive business environment is necessary to ensure that as many innovative options as possible are identified and developed.

Transparent and independent assessment process – grounds for assessment

Under the current arrangements, the Corporation identifies its preferred major source and then goes out to tender within a 'Design, Build, Operate' framework that establishes an alliance between the Corporation and the successful private sector business. The private sector also has the ability to suggest an alternative option to that developed by the Corporation.

While there is an opportunity for the private sector to suggest an alternative option, the grounds upon which an alternative would be assessed are uncertain. For example, in the past proponents have indicated difficulties in accessing information from the Corporation.

There is a lack of transparency in the process used by the Corporation to assess alternative options as it is not clear on what grounds it assesses alternative proposals developed by the private sector. Any uncertainty or ambiguity from the perspective of the private sector will diminish the incentive for it to invest in developing alternative options to submit to the Corporation.

Transparent and independent assessment process – conflicts of interest

The Corporation may be viewed as having a potential conflict of interest when assessing alternative proposals. Under the current approach, the Corporation proves-up what it considers to be the two most appropriate sources. It is then responsible for assessing these options against any others proposed by the private sector. As such, it may have a predisposition towards its own sources when assessing alternative options.

Another potential conflict of interest may exist due to the Corporation's role in developing the annual source operation plans. Annual source operating plans govern the order in which different options are 'dispatched' throughout the year. A private sector proponent may not have confidence that its option, if developed, would be treated on an impartial basis.

The Corporation argues that there is no actual conflict of interest in it undertaking the assessment or developing annual operating plans. However, merely the perception that it may have a vested interest in developing and operating its preferred sources may be sufficient to deter the private sector from offering alternative sources. An example was the attempt of United Utilities Australia (**UUA**) to establish a desalination plant in Esperance and provide water to the Kalgoorlie-Boulder region. The Authority was requested by the Government to undertake an inquiry into the proposal, partly because of the UUA's perceptions that the Corporation was not assessing the proposal on an impartial basis.

Transparent and independent assessment process – political risk

Political risk occurs if the process and/or criteria upon which the decision on the option to develop are uncertain or subject to political intervention. It is possible that any ongoing role by government in decisions about which options to develop could have implications for private sector participation because of the introduction of political risk.

Political risk is present under the current arrangements due to the involvement of the Government in deciding which options to develop. The potential for political interference in the development of one option over another has the ability to reduce significantly the incentive for the private sector to identify and develop alternative options. This in turn reduces the range of options available and increases the cost of maintaining the security of supply.

Even playing field – access to modelling

The private sector does not have access to the same detailed information as the Corporation. The Corporation has well developed models providing information on projected demand and supply. In addition, the Corporation has detailed information regarding integration costs which have a significant impact on the competitiveness of alternative proposals. While the Corporation does release long term supply/demand projections, a lack of access to the detailed modelling complicates the task of the private sector in developing business plans for alternative options.

Even playing field – competitive disadvantage

Despite the concerns identified above, if a private sector proponent did decide to invest in an alternative option with the intention of entering into negotiations with the Corporation, it is at a competitive disadvantage. A competitive disadvantage occurs as it would have to spend its own time and money proving up the option and gaining the necessary approvals. The private alternative would then be considered against bids from pre-qualified private sector proponents bidding on the Corporation's preferred source who would not have had to incur these costs.

Private sector uncertainty regarding factors that influence supply and demand

Factors such as rebates, water restrictions and price have an impact on water use and therefore influence the supply/demand balance. As such, the trigger conditions for their imposition can impact on the viability of options the private sector may be considering. For example, uncertainty regarding future restrictions may influence risk sharing arrangements contained in water supply contracts. It is therefore necessary that the rules that govern the introduction or amendment of these factors be known with certainty if the widest possible range of alternatives are to be identified.

The current arrangement where responsibility for these functions is spread across the Corporation, the DoW and Government inevitable leads to a lack of coordination and consistency. This creates uncertainty and reduces the incentive for the private sector proponents to develop alternative options.

3.3.2.3 Conclusion

The Authority considers there to be a range of shortcomings with the current approach to maintaining security of supply. These include:

- the lack of a clear security requirement;

- that all factors which influence supply and demand (such as supply sources, rebates and restriction regimes) are not housed within a single entity;
- a lack of institutional and regulatory incentives for the corporation to minimise costs and adopt an options modelling framework;
- a lack of clearly defined roles and responsibilities for a number of agencies, including the DOW and Minister;
- that the grounds upon which alternative proposals are assessed are unclear;
- potential conflicts of interest for the corporation in assessing alternative proposals;
- the existence of political risk;
- a lack of ready access to information;
- a competitive disadvantage faced by prospective alternative option providers; and
- private sector uncertainty regarding factors that influence supply and demand.

As a result of these matters, the Authority considers that the current arrangements may not result in security of supply at least expected cost.

3.4 Alternative Procurement Models

Three alternative models were considered in detail to address the shortcomings of the current approach.[17]

The models considered were:

- a separate bulk water operator;
- an Independent Panel; and
- an IPE. The IPE is discussed on both:
  - theoretical; and
  - practical grounds.

3.4.1 Separate bulk water entity

In preparing the Draft Report, the Authority considered the possible creation of a separate bulk water operator with responsibility for owning and managing all existing sources. Under this model, the network/retail part of the Corporation would act as a purchaser of bulk water services and would seek these services from either the separate bulk water operator or alternative suppliers if they emerged.

[17] Other models were considered but dismissed as being impractical. See the Issues Paper and Draft Decision for further discussion.

The analysis undertaken in preparing the Draft Report found there to be synergies from maintaining a single entity responsible for bulk water and the network/retail operations. As such, the Authority did not recommend the creation of a separate bulk water entity.

3.4.1.1 Submissions on Draft Report

The Corporation supported the finding in the Draft Report which found there to be synergies from maintaining a single entity responsible for bulk water and the network/retail operations and stated that there are:

> synergies between the Corporation's bulk water operations and distribution functions which indicate it may not be appropriate at this time to separate the functions. (Corporation Submission on Draft Report, pg 1).

Likewise, Rio Tinto supported the finding in the Draft Report.[18]

The Department of Health stated that in general it:

> agrees that synergies exist between elements of the existing structure within the Water Corporation that are beneficial to the provision of a safe and robust water service. DoH is concerned that any separation between bulk and reticulated water supplies in any water provider will add to the level of operational and administrative complexity. (Department of Health Submission on Draft Report, pg 1).

The Western Australian Council of Social Service (**WACOSS**) supported the decision not to separate the Corporation's bulk water supply operations from its distribution functions. In addition, WACOSS argued:

> That any future analysis regarding the potential separation of the Water Corporation's existing bulk water supply and distribution functions be accompanied by extensive, independent analysis and a transparent, open process of consultation with all relevant stakeholders. (WACOSS Submission on Draft Report, pg 6).

The Chamber of Commerce and Industry (**CCI**) stated that:

> CCI agrees with this statement [to not currently undertake a separation] however, this issue should remain open over the longer term, as the market develops and the water and wastewater customer base grows in the Perth metropolitan region. (CCI Submission on Draft Report, pg 1).

3.4.1.2 Discussion

The Authority identified a number of reasons which indicated that a separation of bulk water and network/retail operations would be inappropriate. These included:

- The findings of a study undertaken by ACIL Tasman which indicated the existence of economies from vertical integration.[19]
- The relatively small size of the Corporation compared to organisations in other jurisdictions where separation has occurred.[20]
- Potential increases in synergies between water and wastewater in the future due to technological advances such as that due to increased reliance on desalination.

[18] Rio Tinto Submission on Draft Report, pg 2.

[19] ACIL Tasman, *Size and scope economies in water and wastewater services,* 2007. Available on the Authority's web page.

[20] For example, Sydney and Melbourne.

These findings indicated that the benefits from the technical and operational linkages between the bulk water supply and the network/retail operations override the benefits of the separated structure at this point in time. In addition, while the creation of a separated entity (with appropriate institutional and regulatory arrangements) could have been undertaken in such a way as to address many of the concerns of the Authority with the current arrangements, the Authority considered that the necessary alterations could be made while leaving the bulk water supply and network/retail operations unaltered.

3.4.1.3 Conclusion

The Authority concludes that it is not appropriate at this time to separate these functions and create a separate bulk water operator.[21]

3.4.2 Independent Panel

In response to the Issues Paper, the Corporation submitted a procurement model which was essentially a refinement on the current arrangements by allowing for private ownership of future sources. However, following the release of the Draft Report where an IPE type model was first proposed, the Corporation submitted a revised procurement arrangement which it suggested would be able to address the concerns the Authority had with the current arrangements. The Corporation stated that the model was a variant on its proposed model. The Corporation stated that it had:[22]

> considered the best way this model could be adjusted to achieve the Authority's objective of ensuring decisions on new water sources are made independently of Government.

The Corporation described the role of the Independent Panel as being one which would:[23]

> issue guidance as to the likely timing of a new source based on planning assumptions. This will provide project proponents with an indicative timetable to allow them to develop their projects and obtain approvals in readiness to place bids;
>
> independently exercise the trigger to acquire based on the prevailing conditions (e.g. dam levels, groundwater access, and demand projections) and the Government's security policy;
>
> determine the successful bid. The panel would be responsible for the assessment of the bids. This would involve input from the Corporation to ensure a successful water supply agreement can be negotiated as part of the bid process.

The Corporation proposed that: [24]

> The Chair and members of this panel could be appointed on an independent basis with the authority to make the decision on the next water source. This decision would need to be consistent with transparent Government policy advice on supply security and other service objectives. The panel would convene as necessary.

3.4.2.1 Submissions

In its submission on the Further Consultation Report, the Corporation maintained that its proposed procurement model was the most appropriate procurement arrangement to address the Authority's concerns.

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[21] Additional analysis can be found in the Authority's Draft Report and Further Consultation Report.

[22] Letter from Corporation to Authority dated 11 March 2008

[23] Water Corporation letter to ERA dated 11 March 2008.

[24] Water Corporation letter to ERA dated 11 March 2008.

The Water Services Association of Australia (**WSAA**) stated that:

> WSAA considers that the Water Corporation's proposal has all the advantages of the IPE but none of the unnecessary costs; given that the panel need only be active for the duration of the consideration of water supply augmentation. So long as this process takes place in a transparent manner, the objectives of the ERA would be fully met at lower costs and this, surely, must be in the best interests of the community. (WSAA Submission on Further Consultation Report, pg 2).

The Department of Treasury and Finance (**DTF**) stated that:

> The Water Corporation's proposal for an Independent Panel to be established to take over responsibility for source development is an improvement on the current situation since it is a more transparent model. However, a number of existing issues with regard to source development are not addressed by this proposal, including the potential lack of independence.
>
> For example, since the Water Corporation would provide advice to the Independent Panel on the need to acquire an additional source or demand management option, the ability of the Panel to reach decisions which are, and are seen to be, truly independent is questionable. If the members of the Independent Panel had the necessary expertise to analyse the information provided by the Water Corporation, or if this expertise could be sourced from a body independent from the Water Corporation, this potential risk could be ameliorated. However, it would probably be difficult to find members for the Independent Panel with the relevant expertise, and the ability to source independent advice from elsewhere could be limited (and costly).
>
> Another concern is that the close involvement of the Water Corporation in the planning and development of new sources could reduce competition and innovation, since the private sector might perceive that the Water Corporation would favour particular types of water sources over others. However, the introduction of greater transparency during the planning and development of new sources might address this concern. (DTF Submission on Further Consultation Report pp 4-5).

3.4.2.2 Discussion

The Authority's views on the Independent Panel model are discussed below in terms of the framework adopted in Section 3.3.1.

Centralised coordination

Clear security requirement

The Independent Panel model includes that the role of the Government be limited to specifying a system security requirement. As such, it addresses concerns regarding the development of a clear security requirement.

Factors that influence supply and demand reside with a single entity

The Independent Panel model does not address the matter of ensuring that all levers which influence supply and demand reside with a single entity. Under the Independent Panel model, the Panel would meet only to 'make the decision on the next water source'.[25] As such, it does not address the Authority's concerns regarding the dispersal of responsibility for matters such as:

- developing sources;

[25] Water Corporation letter to ERA dated 11 March 2008.

- implementing demand management programs;
- distributing rebates; and
- determining prices.

Least cost procurement – institutional and regulatory arrangements

The Independent Panel would address some of the concerns regarding a lack of incentive for the Corporation to minimise costs as the Independent Panel would in effect review decisions of the Corporation. However, the Independent Panel would be heavily reliant on advice from the Corporation. As such its ability to undertake an appropriately independent and rigorous investigation of additional water source may be limited.

In addition, the overall effectiveness of the Independent Panel to manage security of supply at least expected cost would be restricted given that it would be only considering source options.

Least cost procurement – options modelling framework

To implement an effective options modelling framework it is necessary to manage a portfolio of all supply and demand options. It is also necessary to update this portfolio as additional information comes to hand.

The role of the Independent Panel as described by the Corporation is one that would consider source options only and would convene as necessary. As such, it would be unable to manage both supply and demand options. However, it would be possible to expand the Independent Panel's functions to include demand side options and for it to adopt an options modelling framework.[26]

Technical and operational linkages

Under the Independent Panel model, the Corporation maintains responsibility for operation of all sources as well as the water and wastewater reticulation networks. As such, the technical and operational linkages between sources and networks are addressed adequately under the Independent Panel approach.

Clear delineation of roles and responsibilities

Apart from supporting the proposal that the Government's responsibility be simply that of setting the system security requirement, the Independent Panel model does not address specifically the matter of the need to ensure that there is a clear delineation of roles and responsibilities between the various involved agencies.

The Authority considers that regardless of the procurement model adopted, there is a need to address the matter of the remaining roles and responsibilities and can see no reason why this could not be encompassed within the Independent Panel model.

[26] By expanding the range of functions, the Independent Panel model begins to resemble the IPE model.

Creation of a competitive business environment

Transparent and independent assessment process – grounds for assessment

The Independent Panel model would address the concerns regarding the grounds upon which alternative source options would be assessed as it would make its decisions in a transparent and independent manner.

Transparent and independent assessment process – conflicts of interest

The Independent Panel model would alleviate concerns regarding a conflict of interest of the Corporation in relation to assessing bids relative to its preferred option.

However, the Independent Panel model does not address the conflict of interest related to the Corporation being responsible for the development of the annual source operating strategy. This would increase uncertainty for the private sector and therefore reduce its incentive to develop alternative options as the operating strategy has implications for viability of additional source and demand management options.

Transparent and independent assessment process – political risk

The Independent Panel model addresses the concerns regarding political risk given that it proposes that the role of Government be limited to setting the system security requirement.

Even playing field – access to modelling

The Independent Panel model allows the Corporation to provide impartial information regarding supply and demand projections as well as information regarding integration costs. This is the case as it has stated that it no longer wishes to own future sources and as such will remove its self as a competitor in terms of owning additional sources. [27]

Even playing field – competitive disadvantage

The Independent Panel model does not address the concern regarding the competitive disadvantage experienced by a private sector proponent. The competitive disadvantage exists as it would have to invest its own time and money in identifying and proving up a source relative to one developed by private sector proponents who enter the Corporation's prequalification process. This reduces the incentive for the private sector to develop innovative source and demand management options.

Private sector uncertainty regarding factors that influence supply and demand

The Independent Panel model does not address the matter of uncertainty regarding the extent of future rebates and levels of restrictions. As such, difficulties for the private sector in evaluating the viability of potential alternative options remain.

3.4.2.3 Conclusion

The Independent Panel model would represent a significant improvement relative to current arrangements. However, the Authority does not consider that the Independent Panel model addresses all of the concerns identified with the current arrangements. In particular, the Independent Panel model does not address concerns related to:

[27] Water Corporation Submission on Issues Paper, pp 7-13.

- Ensuring that all factors which have an influence on supply and demand reside with a single entity.

- The lack of incentive for the Corporation to minimise costs. This is a result of the Independent Panel being heavily reliant on advice from the Corporation. As such, its ability to undertake an appropriately independent and rigorous investigation of additional water sources may be limited.

- The competitive disadvantage experienced by a private sector proponent. This is due to a private sector proponent having to invest time and money in identifying and proving up a source compared with a private sector proponent who enters the Corporation's prequalification process.

- Uncertainty regarding matters which affect the viability of potential options such as the extent of future rebates and levels of restrictions.

The result of these shortcomings is that the Independent Panel model would be unable to ensure security of supply at least expected cost. This is due to two main factors.

First, the Independent Panel model is unable to take full advantage of the benefits of centralised coordination. This is due to the Independent Panel not having control of all options such as rebates and restrictions. As a result, the Independent Panel would be unable to implement a full options approach. Therefore, it would be ineffectual in ensuring least expected cost maintenance of security of supply.

Second, the Independent Panel model does not create a competitive business environment as it does not address all of the concerns of a private sector proponent wishing to enter the market. The model would therefore be unable to identify the widest possible range of innovative source and demand management options. This may lead to the adoption of a combination of options that do not represent the lowest expected cost solution to ensuring security of supply.

While the Independent Panel model is potentially a significant improvement on the current arrangements, the existence of the shortcomings identified above requires that further modifications be made. To address these shortcomings, the Authority developed the IPE model. The IPE model is discussed below.

3.4.3 Independent Procurement Entity - Theory

The roles and functions of the IPE were described in Box 1. In brief, the IPE would be responsible for ensuring least expected cost provision of supply, subject to maintaining a level of water security determined by the Government.

3.4.3.1 Discussion

The way in which the IPE addresses the necessary features of an effective procurement process are discussed below.

Centralised coordination

Clear security requirement

Under the IPE model, the Government determines a security requirement. The Government would make its decision regarding the appropriate level of security based on an assessment of the trade-off between risk and security. The IPE would then procure

sources and demand management options to meet this requirement. As such, the IPE model addresses concerns regarding a clear security requirement.

Factors that influence supply and demand reside with a single entity

The IPE would take over responsibility for all factors that influence supply and demand. These would include:

- the management of existing and procurement of additional sources;
- the oversight of all demand management options;
- distributing rebates; and
- determining prices (subject to any Government social policies regarding capacity to pay).

The transfer of these functions to the IPE is necessary to coordinate all supply and demand options and facilitate least cost provision of services.

Least cost procurement – institutional and regulatory arrangements

The specific objective of the IPE would be to achieve the Government's security of supply objective at least expected cost. As such, the IPE model does not suffer from a lack of incentive to minimise costs.

Least cost procurement – options modelling framework

The IPE would adopt an options modelling framework. This would involve the IPE developing a detailed supply and demand model. The model would encompass the full portfolio of supply and demand options including:

- Sources such as:
  - groundwater;
  - surface water;
  - desalination;
  - recycled water; and
  - water trading;
- Demand management programs such as:
  - water restrictions;
  - rebates; and
  - water buy backs.
- Pricing (subject to any Government social policies regarding capacity to pay).

There would be a continuous role for the IPE as it would actively update the model as additional options and information came to hand. The adoption of an options modelling framework would support least expected cost procurement.

Technical and operational linkages

The Corporation would maintain responsibility for operation of all sources feeding into the water and wastewater reticulation network. As such, the technical and operational linkages between sources and networks are addressed under the IPE model.

Clear delineation of roles and responsibilities

As noted in the discussion of the Independent Panel model, there is a need to establish a clear delineation of roles and responsibilities for all agencies involved in water supply management regardless of the procurement model adopted.

Creation of a competitive business environment

Transparent and independent assessment process – grounds for assessment

The IPE would make the grounds upon which it assessed alternative proposals clear. In addition, the IPE would develop and release a detailed supply/demand projection model to enable prospective private sector participants to identify future shortfalls. Integration cost information would also be provided as necessary. Furthermore, all decisions of the IPE would be made public (excluding commercial in confidence material).

Clarifying the grounds upon which decisions are made will increase the confidence of the private sector in the process and therefore its incentive to participate. Moreover, providing additional information will enable the private sector to gain a greater understanding of the water supply chain and therefore increase its ability to develop innovative source and demand management options.

Transparent and independent assessment process – conflicts of interest

The IPE model alleviates concerns regarding a conflict of interest of the Corporation in relation to assessing bids relative to its preferred option. In addition, the IPE model addresses the perception of a conflict of interest of the Corporation in relation to annual source operating plans which exists under the Independent Panel model.

The conflict of interest under the Independent Panel model relates to the development of the annual source operating strategy by the Corporation while it is a major source owner. Under the Independent Panel model the Corporation is responsible for developing the strategy while at the same time being the major source owner. As such, a private sector proponent may not have confidence that its option, if developed, would be treated on an impartial basis.

Under the IPE model, the IPE would develop the annual operating strategy (with advice from the Corporation as required). Such an arrangement ensures that the strategy would be developed in an impartial manner and provide the private sector with confidence that any options it developed would be treated on the same footing as those owned by the Corporation. This would in turn increase the incentive for the private sector to develop innovative options.

Transparent and independent assessment process – political risk

The IPE model addresses the concerns regarding political risk as the role of the Government would be limited to setting the system security requirement.

Even playing field – access to modelling

As discussed above in relation to the grounds for assessment, the IPE would develop a detailed publicly available supply and demand model. In addition, information regarding integration cost information would be provided. If required, the Corporation would be able to assist the IPE in an unbiased manner in developing these models and providing the necessary integration cost information as it has stated a preference to not own new sources.

Even playing field – competitive disadvantage

The IPE model addresses the concern regarding the competitive disadvantage experienced by private sector proponents. Under the Independent Panel model, a private sector proponent would have to invest time and money in identifying and proving up a source relative to simply entering the Corporation's prequalification process. This would reduce the incentive for the private sector to develop innovative source and demand management options.

By contrast, under the IPE model, the IPE would go to the market and seek preliminary bids from the private sector. The IPE would then fund the most prospective options for further development (subject to appropriate due diligence procedures).

Providing funding to investigate and obtain approvals for alternative sources or to develop potential alternative demand management solutions is consistent with the current approach. Under the current approach, any costs incurred by the Corporation in proving up sources or developing demand management solutions are recovered from customers through tariffs.

For example, the Corporation is currently funding two consortia which are developing bids to construct and operate the second desalination plant. A further example relates to the Corporation's demand management programs where it runs trials testing alternative demand management programs before deciding whether or not to implement them more broadly across the community.

Providing the private sector with the opportunity to access this funding creates a level playing field between the Corporation's preferred options and those of the private sector.

Uncertainty regarding factors that influence supply and demand

All supply and demand options would be managed by the IPE. In addition, the annual source plans would be made transparent as would the trigger conditions relating to alterations in the level of rebates, restrictions, pricing structures etc. This is necessary given that these factors influence the viability of projects being considered by the private sector. Without this clarification, the ability of the procurement process to efficiently allocate risk is limited.

Clarification on the imposition of restrictions and rebates will increase the incentive for the private sector to develop alternative supply and demand options relative to the current and Corporation proposed model.

3.4.3.2 Conclusion

The Authority identified a range of shortcomings with the current arrangements. While the Independent Panel model addressed some of these matters, concerns remained regarding:

- ensuring that all factors which have an influence on supply and demand reside with a single entity;
- the lack of incentive for the Corporation to minimise costs and ensure least cost procurement;
- a potential conflict of interest regarding the development of annual source operating plans;
- the competitive disadvantage experienced by private sector proponents; and
- uncertainty regarding matters which affect the viability of potential options such as the extent of future rebates and levels of restrictions.
- In addition, the Authority identified concerns regarding the ability of the Independent Panel to develop or acquire independent technical advice to make informed decisions;

The IPE model developed by the Authority addresses these concerns. Table 3.1 illustrates how the three approaches compare regarding the necessary features of an effective procurement model.

Table 3.1 Necessary features of an effective procurement model

Characteristic	Current Approach	Independent Panel	IPE
Clear security requirement	x	✓	✓
Factors that influence supply and demand reside with a single entity	x	x	✓
Least cost procurement – institutional and regulatory	x	x	✓
Least cost procurement – options modeling framework	x	✓	✓
Technical and operational linkages	✓	✓	✓
Clear delineation of roles and responsibilities	x	✓	✓
Transparent and independent assessment process – grounds for assessment	x	✓	✓
Transparent and independent assessment process – conflicts of interest	x	x	✓
Transparent and independent assessment process – political risk	x	✓	✓
Even playing field – access to modeling	x	✓	✓
Even playing field – competitive disadvantage	x	x	✓
Private sector uncertainty regarding factors that influence supply and demand	x	x	✓

The benefits of the IPE model include that it is able to take full advantage of a centrally coordinated approach and develop or acquire the expertise to make informed independent decisions. The IPE would have responsibility for all factors that influence supply and demand. These factors would include sources, water efficiency rebates and water restrictions. As a result, the IPE would be able to implement a full options approach. This would ensure security of supply was met at least expected cost.

Furthermore, the establishment of an IPE would create a competitive business environment. It would achieve this as it would address all of the concerns of a private sector proponent wishing to enter the market. The creation of a competitive business environment would guarantee that the widest possible range of innovative source and demand management options were identified. This would in turn ensure that the least cost combination of options is developed.

3.4.4 Independent Procurement Entity - Practice

The Authority first proposed the introduction of an IPE in the Draft Report. Submissions on the Draft Report sought additional information and requested that further consultation be undertaken before the Final Report. As such, the Authority released a Further Consultation Report.

Submissions on the Draft Report and Further Consultation Report raised a number of practical matters related to the introduction of an IPE. These matters can be grouped into the following themes:

- independence and transparency;
- bureaucracy and cost effectiveness;

- continuous role for the IPE;
- alternative source and demand options;
- accountability;
- economic efficiency;
- the use of an 'options' modelling approach;
- competition and risk allocation;
- the location of the IPE;
- experience in other jurisdictions;
- introduction of an IPE;
- the theory of an IPE and experiences in other industries;
- competition between potential suppliers;
- conflict of interest;
- uncertainty; and
- information asymmetry.

This section discusses the matters raised in submissions on these themes.

3.4.4.1 Independence and transparency

Submissions

The Corporation acknowledged the importance of independence and transparency.

> While there is currently an extensive review mechanism of major new sources that is independent of the Corporation, the Corporation agrees that for transparency there would be merit in increasing the independence and strength of this review, particularly in demonstrating that procurement processes (including those conducted by the Corporation) are impartial to all interested participants, and that economic evaluation is properly balanced. (Corporation Submission on Draft Report, pg 4).

DoW stated that it:

> is supportive of the perceived objectives underlying an IPE model where it adds to the sustainable growth of the Western Australian water industry and ensures ongoing security of supply. Specifically, the DoW supports …:
>
> - increased transparency and independence in the examination of the major augmentations of water providers. (DoW Submission on Draft Report, pg 4).

The Goldfields Esperance Development Commission (**GEDC**) stated that:

> Given this region's experience over recent years with the United Utilities of Australia proposed project to desalinate water in Esperance and pipe potable water to the Goldfields; there is a case for a body, independent of the Water Corporation, to decide on

> the merits, or otherwise, of developing a new bulk water source. (GEDC Submission on Draft Report, pg 1).

DTF stated that:

> There has been some suggestion that the WC could adopt the proposed framework for bulk water procurement, rather than the establishment of an independent body. While the WC could conceivably perform these functions, it is the independence of the procurement entity which provides confidence to the private sector, by ensuring that the largest provider of bulk water in Western Australia will not also be the regulator of investment decisions. This independence will also allow the WC to compete in bulk water supply tenders, therefore ensuring a least-cost approach to waters supply procurement. (DTF Submission on Draft Report, pg 2).

Discussion

There was widespread support for increased independence and transparency in the procurement process. The major benefit of an independent and transparent procurement process is that it will provide certainty regarding the grounds upon which decisions are made. In addition, it will provide all prospective market participants with confidence that each proposal will be assessed on an impartial basis. This will in turn encourage prospective participants to develop new and innovative options for consideration.

The acceptance of the need for increased independence was evidenced by the Corporation's proposal to introduce an Independent Panel. While the Authority identified a range of concerns with the Independent Panel model (see Section 3.4.2), it considers the proposal to be a significant improvement on the current arrangements and an indication of the acceptance of the need for increased independence.

The establishment of an IPE as a statutory authority would ensure its independence. The model of an independent statutory authority taking responsibility for maintaining the supply/demand balance has similarities with the Reserve Bank of Australia.

Under the Reserve Bank model, the Commonwealth Government tasks the bank with managing interest rates and subsequently money supply and demand. One of the key advantages of such a model is a reduction in political risk, resulting in increased confidence and investment by the private sector.

The IMO, which oversees the operation of the Wholesale Electricity Market in Western Australia, is a further example of independent market operation.

3.4.4.2 Bureaucracy and cost effectiveness

Submissions

The Community and Public Sector Union (**CPSU**) stated that it did not support the establishment of an IPE because:

> It is setting up a further tier of bureaucracy … (CPSU Submission on Draft Report, pg 1).

The GEDC stated that while it supported the introduction of an independent body, it would:

> require the creation of yet another level of administration and resulting costs, which will need to be passed onto the consumer eventually, to achieve this objective? (GEDC Submission on Draft Report, pg 1).

Barry Sanders argued that:

> An IPE will be nothing more than an extra, unnecessary bureaucracy in the way of timely decision making on new sources… (Barry Sanders Submission on Draft Report, pg 1).

The CCI stated that businesses are often unsure of where regulatory responsibility resides and that it was concerned that:

> the introduction of another regulatory agency will compound this problem, adding another layer of administrative complexity and additional costs. (CCI Supplementary Submission on Draft Report, pg 2).

Otto Mueller stated that he could not:

> see the role of an economic regulator in a system which has for years increasingly called for less regulation, fast-tracking, smaller government and less 'red tape'. (Otto Mueller Submission on Draft Report, pg 2).

The Australian Water Association (**AWA**) stated that its members viewed the IPE:

> as another level of potentially superfluous bureaucracy and unnecessary regulation. (AWA Submission on Draft Report, pg 2).

Discussion

While the introduction of the IPE would require the establishment of an additional player in the water and wastewater sector, it would streamline the current arrangements. The IPE would be a single entity charged with maintaining security of supply at least expected cost. In achieving this, it would take over responsibility for a variety of functions currently undertaken by the Corporation, the Government via the relevant Minister and the DoW. The IPE would act as an initial point of contact for those interested in entering the market and would liaise with other related agencies such as the DPI and EPA as required.

It was also argued that the IPE would not be cost effective and would therefore result in increased costs to consumers. However, consider the following. If an alternative were developed that enabled a desalination plant to be postponed by a single year, it would result in a saving of between approximately $50 and $100 million in net present value terms.[28] This simple example illustrates the opportunities and potential savings that exist from the establishment of the IPE.

The Authority considers that the establishment of an IPE and its ability to bring together under one roof functions carried out currently across a range of agencies, would increase coordination, reduce red tape and provide greater clarity of roles. In addition, the Authority considers that over time the expenditure on establishing and running the IPE would be worthwhile and result in overall and significant savings for consumers.

3.4.4.3 Continuous role for the IPE

Submissions

The Corporation stated that:

> Source acquisition would normally only occur every 5 to 10 years. (Corporation Submission on Further Consultation Report, pg 3).

The DoW stated that:

[28] The amount saved would depend on the cost of any alternative options developed. However, assuming a capital cost of $1billion, a return on and off capital of 7 per cent and operating costs of approximately $30 million per year, the saving from deferral would be $100 million.

> the role envisaged for the IPE is a discrete and intermittent process which would not justify the establishment of a dedicated agency. (DoW Submission on Further Consultation Report, pg 2).

WSAA stated that it:

> has some difficulty understanding the need to create a permanent entity that would only need to be active for short periods of time. (WSAA Submission on Further Consultation Report, pg 2).

Discussion

Several submissions argued that the expense associated with establishing the IPE could not be justified as its role would be intermittent. The Authority considers there to be a wide variety of tasks which would require the IPE's ongoing attention. For example, while the Corporation argued that source acquisition would occur only every five to ten years, it also submitted that:

> In recent years we have developed additional capacity through the Stirling/Harvey Redevelopment (29GL), the Mirrabooka borefield expansion (6GL), 3 separate additional Yarragadee bores (3 x 5GL), Samson Pipehead Dam (8GL), Wokolup Creek Pumpback (10GL), the Kwinana Wastewater Reuse Project (6GL), Perth Seawater Desalination Plant (45GL), the Harvey Water trade (17GL), and demand management (45GL) made up of multiple initiatives.
>
> In addition to preparing for an additional 50GL desalination capacity at the SSDP, the Corporation is pursuing Security through Diversity, including investigating catchment management (20GL), Collie mine dewatering (6GL), Managed Aquifer Recharge (up to 100GL) and the second stage of Kwinana Wastewater Reuse Project (3.6GL).
>
> (Corporation Submission on Further Consultation Report, pg 13).

These examples indicate a need for continuous oversight of option procurement.

In addition, there are a range of matters which would require the immediate attention of the IPE. These include:

- developing a detailed inventory of all current supply sources and demand management programs;
- developing a detailed supply/demand model with the assistance of the Corporation;
- developing a detailed 'options' model to enable the analysis of alternative supply and demand options;
- investigating the costs/benefits of various existing supply and demand programs including water restriction and rebate regimes; and
- monitoring the development of an effective water trading regime.

Continuing roles which would need to be undertaken on an annual basis include:

- development of the annual source operating plan;
- updating models based on latest supply and demand projections; and
- running procurement processes for additional supply and demand options as required.

As a further indication of the existence of ongoing projects which the IPE would take over, the Authority notes the 'Water Forever' process being undertaken currently by the Corporation (and discussed further below with respect to alternative source and demand management options). As part of this process the Corporation is assessing the viability of various potential supply and demand management options and running a public consultation campaign. The Authority considers the oversight of processes such as this would in part fall within the remit of the IPE.

The Authority also notes previous studies similar to 'Water Forever'. These include:

- 'Perth's Water Future: A water supply strategy for Perth and Mandurah' completed in 1995;
- 'Wastewater 2040, Strategy for the Perth Region' completed in 1995; and
- 'Integrated Water Supply Scheme, Source Development Plan' completed in 2005.

The Authority considers these studies to be a further indication of the need for continuous management of the supply and demand balance and hence demonstrate the need for a permanent dedicated body.

Furthermore, under a full options approach, there are a range of external matters that could at any time trigger a requirement to reassess the strategy and timing of options. These include technology changes that alter the level or structure of costs as well as changes in the assessment of climate change impacts and near-term rainfall patterns.

Finally, housing the IPE within a similar organisation, such as the Independent Market Operator for electricity, could also address concerns regarding the possible intermittent nature of the IPE. This matter is discussed further in Section 3.4.4.9.

3.4.4.4 Alternative source and demand options

Submissions

DTF stated in its submission on the Draft Report that:

> a more detailed discussion of possible source options would be appreciated, in order to guarantee a sufficient number of alternative sources or proposals are available, such that the viability of the IPE's operations is ensured. While this is not an immediate threshold issue, it will impact on both the ability of the IPE to attract and finance expertise, and the feasibility of a merger with the electricity sector's IMO. (DTF Submission on Draft Report, pg 2).

DTF restated this concern in its submission on the Further Consultation Report.

Discussion

Doubts were raised regarding whether there are sufficient alternative source and demand management options available to warrant the introduction of the IPE, or whether it would largely focus on the procurement of further desalination plants.

The Authority notes the range of options identified in the Corporation's 'Water Forever' process. As part of this process, the Corporation has identified a wide variety of demand

management and alternative supply options. These are reproduced in Table 3.2 along with the estimated volume.[29]

Table 3.2 Source and demand options identified by the Corporation

Option	Detailed Option	Potential Volume (GL)
Water use efficiency	Water use efficiency initiatives	4 – 40
Individual alternative water supplies	Rainwater tanks	5 – 10+
	Garden bores	8 – 15+
	Greywater systems	3 – 15
Community alternative water supplies	Community bore systems	6 – 10+
	Sewer mining systems	5 – 20
	Community 3rd pipe systems	5 – 20
Water recycling	Groundwater replenishment	25 – 100
	Industrial use	5 – 50
Desalination	Southern Seawater Desalination Plant (Phase 2)	50
	Other sites	100 – 200
	Esperance pipeline	15 – 20
Surface water sources	Water trading	7+
	Brunswick Dam	30+
	Wellington System	
	• Collie Basin	10+
	• Wellington Dam	14+
	• Water Trading	16+
Groundwater sources	North West Coastal	10 – 20+
	Jandakot expansion	3+
	Gingin – Jurien	10 – 20+
	Karnup – Dadalup	5 – 10+
Other	Catchment management	5 – 20+

Similarly, the DoW has identified a range of source combinations which once developed will allow for a reduced draw from the Gnangara Mound in the years leading up to the commissioning of the Southern Seawater Desalination Plant.[30] These options are shown in Table 3.3.

[29] Water Corporation, *Water Forever: Options for our water future,* April 2008, pg 49. The range of potential volumes is that given as being available between 2020 and 2060.

[30] Department of Water, *Gnangara groundwater areas, Water management plan, Draft for public comment,* February 2008, pp 53.

Table 3.3 Contingency water sources identified by the Department of Water

Year	Contingency Source	Major Source
2008-09	Harris Dam (5 GL)	
2009-10	Harris Dam (5 GL) and Collie mine dewatering (5 GL)	
2010-11	Logue Brook Dam (5 GL) and Collie mine dewatering (5 GL)	
2011-12	Logue Brook Dam (5 GL) and Collie mine dewatering (5 GL)	Southern Seawater Desalination Plant (25 GL)
2012-13	Logue Brook Dam (5 GL) and Collie mine dewatering (5 GL)	Southern Seawater Desalination Plant (50 GL)

There are also numerous demand management programs and initiatives overseen by the Department of Water and funded by the Corporation. These include rebates for:

- swimming pool covers;
- greywater re-use systems;
- rain sensors;
- subsurface irrigation systems;
- washing machines rated 4 'stars' (4.5 'stars' from January 2008) or better;
- waterwise garden assessments;
- domestic rainwater tanks with a capacity of 600 litres or greater;
- domestic garden bores; and
- flow regulators rated 3 'stars' or better.

The rebate on rainwater tanks and swimming pool covers have recently been increased while several items have recently been removed from the rebate list. These include:

- soil wetting agents;
- showerheads 3 star and above;
- tap timers; and
- aerobic treatment units (used for wastewater treatment).

In addition, there is a water restriction regime administered by the Government.

The Authority has emphasised the important role demand management programs can play in maintaining security of supply. The Authority considers there to be an important role for the IPE in determining the cost effectiveness of these rebate and restriction regimes relative to alternative supply options. Pricing can also play an important role as a demand management tool and is discussed in detail in Section 8.4.

In addition, there are non-traditional options which the Authority considers will most effectively be identified under an IPE model. Box 5 describes one such example.

Box 5 Non-traditional source options[31]

- The Gladstone Area Water Board (**GAWB**) is the bulk water provider for the Gladstone region in Queensland.
- During the recent drought a potential future supply shortfall was identified.
- The GAWB proposed to build a 150 km pipeline from the Fitzroy catchment to the North to meet the supply shortfall.
- The GAWB proposed that costs associated with the pipeline be passed onto customers via water tariffs.
- The major water customers in the Gladstone area are power stations which use water for cooling.
- The power stations argued for a reconsideration of the pipeline.
- The power stations argued that only those customers who value the increased security of supply should pay for the pipeline.
- In addition, the power stations argued that a lower cost alternative to the pipeline would be the installation of 'dry-cooling' technology which would reduce their consumption. As such, they suggested that the GAWB should pay for the necessary upgrades rather than the pipeline.

Recent rains have potentially averted for the time being the need to construct the pipeline. However, the demand management initiative suggested by the power stations is an indication of the alternative ways in which shortfalls in supply can be addressed. It also indicates the need for a procurement framework to explicitly seek all possible options for addressing supply shortfalls.

The Authority considers there to be a wide variety of possible supply source, demand management (including rebate and restriction regimes) and non-traditional options. In addition, the Authority considers it highly probable that there are options other than those identified above.

Similarly, there may be alternative ways of delivering the identified options or the possibility of adjusting the timing of their introduction, including scalability of options. These as yet unidentified options and alternative delivery methods will be identified and developed most effectively under an IPE which is designed to explicitly seek innovative supply and demand management solutions.

3.4.4.5 Accountability

Submissions

The Corporation stated that it:

> questions the wisdom of changing accountability for source procurement from an organisation with a successful track record to a new entity. The Corporation's public accountability for supply security has provided the management focus to successfully

[31] The Queensland Competition Authority is undertaking an investigation into the pricing practices of the Gladstone Area Water Board. Further information regarding the investigation can be found at: www.qca.org.au/water/gladstone-2007/

> deliver new sources and demand management initiatives over recent years, maintaining Perth's water supplies in a drying climate.
>
> More fragmented accountability structures in place in the eastern states have resulted in slow supply responses resulting in the imposition of total sprinkler bans. These institutional arrangements have dramatically reduced customer service levels and failed to deliver value for money. Further, they have impacted more broadly on the economic activity levels in these States, stifling private and public investment. (Corporation Submission on Further Consultation Report, pg iii).

Discussion

The Corporation cites its public accountability and argues that fragmented accountability structures in the Eastern States have resulted in slow supply responses and the imposition of total sprinkler bans. The IPE would have sole responsibility for managing supply and demand options. The IPE would take over a variety of tasks undertaken currently by the Government, the Corporation and the DoW. As such, the introduction of the IPE would see the consolidation of accountability in a single entity rather than a more fragmented approach as suggested by the Corporation.

Under the model proposed, the IPE would have the clear objective of maintaining security of supply at a level set by the Government. The role of the IPE would be similar to that of the Reserve Bank of Australia. The Reserve Bank has been established as an independent agency with the express role of maintaining a target interest rate determined by the Commonwealth Government. The IPE would play a similar role and would be directly accountable to water consumers.

3.4.4.6 Economic efficiency

Submissions

The AWA stated that it had concerns regarding:

> the possibility that a focus on economic efficiency may come at the expense of environmental protection and related sustainability issues (which are not often easily quantifiable). (AWA Submission on Draft Report, pg 2).

The DoW stated that:

> On the proposal for demand management and rebates schemes for water use efficiency to be transferred from the DoW to the IPE, there would be an inherent conflict of interest in having there programs and initiatives located in and administered by an agency that has a purely economic/commercial focus rather than a broader public interest focus, including sustainable water use and environmental protection. (DoW Submission on Further Consultation Report, pg 2).

Discussion

Concerns were expressed that the IPE may have a purely economic/commercial focus at the expense of the environment and social factors. The assessment process undertaken by the IPE would take into account all relevant factors. It would also be consistent with the State Sustainability Strategy (2003), as the IPE would base its decisions on the project that has greatest total net benefit to the community. The total net benefit of a project to the community is the sum of net private benefits and net public benefits. Private benefits and costs accrue to parties directly engaged in the project (such as potential suppliers,

shareholders, employees, or customers).[32] Public benefits and costs accrue to the wider community, for example from environmental impacts or the provision of public amenities.

- Private benefits and costs associated with each project would obviously be reflected in the value of the bid from the proponent.
- Public benefits and costs that relate to the environment would be taken into account through:
  - the involvement of the EPA in undertaking Environmental Impact Assessments; and
  - the DoW in granting licences and monitoring usage.
- Costs associated with meeting EPA and DOW requirements would be reflected in the value of the bid, as would costs incurred to comply with meeting the requirements of the Department of Health. As such, any prospective sources would already have met the necessary environmental standards.
- To the extent that other benefits and costs (often referred to as social benefits and costs) outside of those identified above exist, these would need to be identified by the proponent through appropriate consultation processes and included as part of its bid. The IPE could be given the power to undertake further consultation to ensure the assessment process incorporates all public benefits and costs.[33]

Both environmental and social factors, as well as financial costs, would therefore be taken into account in any decision of the IPE. An advantage of the IPE is that it would be able to make the trade-offs between these often competing factors transparent, which would lead to more informed decision making. The trade-offs associated with use of the Gnangara Mound and the rule which governs its use provides a good example.

Box 6 describes the Gnangara groundwater abstraction rule.

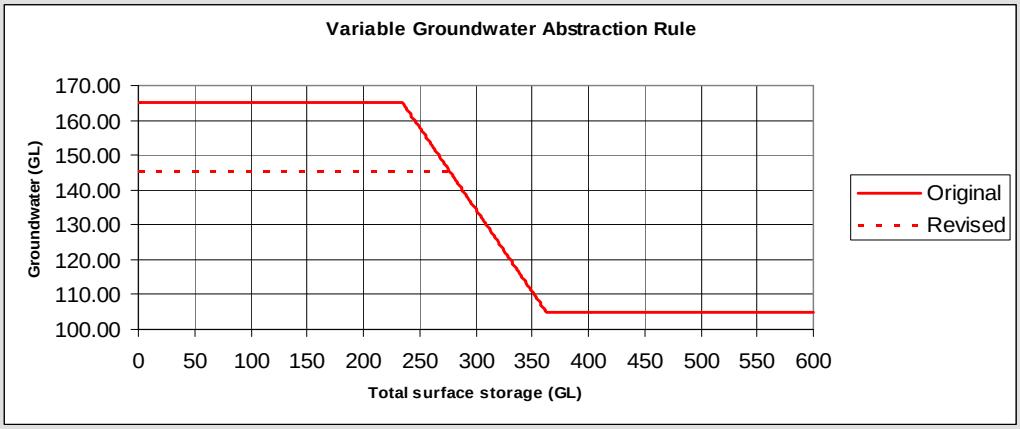
[32] It should be noted that because benefits are defined as private does not mean the community does not benefit. Rather, it means that the members of the community who gain comprise the consumers, producers, employees, suppliers, etc who are party to the project.

[33] Note that some public benefits cannot easily be quantified in monetary terms, but they should be identified, described and taken into account in cost-benefit analysis, even if they cannot readily be given a dollar value. Note also that the economic impacts of a project, which can be quantified, such as the employment consequences of a project, are not typically included in the cost-benefit analysis for the reason that if the project did not go ahead the resources that were to be used in the project would not lay idle but would be used elsewhere in the economy to create economic value.

Box 6 The Groundwater Abstraction Rule[34]

Groundwater accounts for approximately half the water requirements of the IWSS. Water is extracted via a series of bores, treated and fed into the IWSS. The vast majority of groundwater is abstracted from the Gnangara Mound, with smaller amounts taken from Jandakot and Neerabup.

A groundwater abstraction rule developed by the DoW governs the Corporation's groundwater abstractions. The rule in effect uses groundwater reserves as a balancing item. Abstractions are increased when dam (surface) storages are low and are reduced when dam storages are high. The rule was recently revised by the DoW. The original and revised abstraction rules are represented in the following chart.



As an example of how the abstraction rule operates, consider the following with regard to the original rule. If dam storages are less than 235 GL, groundwater abstractions of 165 GL are allowed. As dam storages increase, groundwater abstractions are reduced such that at dam storages of 300 GL, abstractions are approximately 135 GL. Once dam storages exceed 362.5 GL, abstractions fall to 105 GL.

The revised rule reduces the maximum volume allowed to be abstracted to 145 GL due to concerns the current level of abstractions were unsustainable and has a target abstraction of 120 GL. These volumes will be revised following the completion of the Gnangara Sustainability Strategy in 2011.

There is a trade-off between the cost[35] of continued use of the Gnangara Mound and the cost of developing other source or demand management options. The DoW identified a range of options which it considered could be developed to meet the shortfall caused by the reduction in abstraction. These were identified above in Table 3.3. The Authority recognises the merit of the DoW identifying alternatives to meet the shortfall. However, it is concerned that the least cost combination of supply and demand options may not be being developed.

The Authority is not suggesting that it was inappropriate to reduce the maximum abstraction from the Gnangara Mound. Rather, the Authority is arguing that there is a need to put in place a robust decision making framework to ensure the most appropriate trade-offs between options are made. A key characteristic of this framework would be to make the trade-offs between alternative options explicit.

In addition, making trade-offs between alternative options explicit will likely identify further alternative solutions. With respect to the Gnangara Mound, one such option may be to

[34] Department of Water, *Gnangara groundwater areas, Water management plan: Draft for public comment,* February 2008.

[35] Costs refer to environmental, social and financial costs.

require a reduction in abstraction from all users on the Gnangara Mound, as opposed to solely reducing the Corporation's abstractions.

The DoW also argued that the IPE would have a conflict of interest in administering demand management and rebate schemes. The Authority considers there to be clear advantages from having a single entity responsible for all matters that influence supply and demand within the IWSS.[36] Having a single entity responsible for all matters which influence supply and demand is the most effective way of ensuring that the necessary trade-offs between all possible options are best taken into account.

3.4.4.7 The use of an 'options' modelling approach

Submissions

The Urban Development Institute of Australia (**UDIA**) stated that it:

> supports the ERA's proposed model which emphasises an options approach to planning. This model offers a more flexible approach to water source planning than the current system and may provide more opportunity for the implementation of innovative water solutions within new residential developments. (UDIA Submission on Draft Report, pg 1).

Marecon Pty Ltd stated that:

> the IPE should independently determine a portfolio of source options, developed from a model that takes into account a range of inflow states and competitive procurement options that would support the required variability without over commitment in regard to infrastructure funding and without stifling competition or technological innovation. (Marecon Pty Ltd Submission on Draft Report, pg 1).

WSAA stated that it:

> WSAA has undertaken a project in the use of real options analysis in the financial evaluation of urban water resource planning.
>
> WSAA agrees with the ERA that real options analysis can potentially provide extremely valuable information to, and insights for, decision makers. As the WSAA Occasional Paper notes real options analysis ".. can be seen as an extension of discounted cash flow analysis and in the urban water sector appears to be most appropriate in situations where:
>
> • the benefits of one project over others is uncertain,
>
> • information can be gathered in future that helps make better decisions,
>
> • there is flexibility in a project, in some of its components or in a portfolio of projects – for example the ability to delay, or to choose a staged or modular design,
>
> • there are adjustment costs in reversing the project or its components."
>
> (WSAA Submission on Further Consultation Report, pg 3).

The Corporation stated that:

> A real options approach is not exclusively available to the IPE and is in fact consistent with the Corporation's current considerations for source acquisition. (Corporation Submission on Further Consultation Report, pg iii).

[36] The Authority acknowledges that there may be an ongoing role for the DoW in administering demand management and rebate programs in areas not connected to the IWSS although it would be expected that treatment in the two areas would be based on common principles.

Discussion

The Authority notes the submissions from the UDIA, Marecon and WSAA expressing support for the use of an options approach. In addition, the Authority notes the view of the Corporation that an options approach is not exclusively available to the IPE.

An full options modelling framework involves explicitly taking into account uncertainty and reassessing decisions as additional information comes to hand. In the case of maintaining security of supply in the water industry, uncertainty exists mainly in relation to future levels of supply due to factors such as drought and climate change (demand can be forecast with a reasonable degree of certainty). Applying a full options framework would involve taking this uncertainty explicitly into account when managing existing options and deciding on future supply source and demand management alternatives. Furthermore, it may entail altering the timing of when additional options would be developed.

The Authority has considered in detail the source development model in use by the Corporation, has commissioned a consultant to analyse the methodology adopted by the Corporation and has engaged in a continuous dialogue with the Corporation regarding its approach to procurement.[37] Based on the information gathered during this process, the Authority does not consider that the Corporation's approach to modelling represents a full options modelling approach.

Under a full options approach, the applicability of supply and demand options (both large and small) are reassessed continually as additional information comes to hand. A full options approach is necessary in order to ensure the least expected cost balancing of supply and demand.

While a full options approach is not exclusively available to the IPE, the Authority considers there to be a fundamental reason why the Corporation has yet to adopt such an approach. As noted in Section 3.3.2.2 with respect to the shortcomings of the current approach, there is a lack of incentive for the Corporation to minimise its costs.

This is due to a lack of competitive pressures, an ineffective regulatory regime given that there is no comprehensive review of expenditures and that all costs are recovered from customers. The Authority considers that due to this lack of incentive to minimise costs, the Corporation has failed to adopt a full options modelling approach. This is in contrast to an industry such as the mining industry where full options modelling is used to help inform decisions which rely on uncertain factors such as exchange rates and commodity prices.

The Authority considers that a full options modelling approach should be implemented in the procurement of additional supply and demand management options. The Authority considers that while it is possible for the Corporation to adopt such a model, it has little incentive to do so in the future. In addition, the Authority considers that the Corporation would be unlikely to be able to realise the full benefits available from such an approach relative to the IPE, given the IPE's explicit goal of minimising the expected cost of achieving security of supply.

[37] The Draft Report contains a more detailed discussion of options modelling. In addition, a report commissioned from ACIL Tasman entitled 'Frameworks for Water Source Procurement in WA' discusses the Corporation's approach and how it compares to an options approach. This report is available on the Authority's web site.

3.4.4.8 Competition and risk allocation

Submission

The Corporation notes that:

> A clear distinction needs to be made between obtaining the benefits of competition and the need to set up a competitive market for water. Fortunately, competition in water source supply does not need a decentralised water market. The benefits of competitive procurement are available to a well planned water supply system.
>
> Companies are willing to bid to build, operate and own new water sources on the basis that they will be managed centrally and procurement processes can be designed to encourage and reward innovation. (Corporation Submission on Further Consultation Report, pp 4-5).

The Corporation then argues that:

> A key attraction of a central procurement and management model is the commercial certainty associated with water supply contracts with the water utility. The advantage of a contract with fixed capacity payments is that it is bankable for the private sector, and will encourage more participation and competition than with less certain market outcomes. This model will attract more private sector interest and therefore result in greater competition.
>
> The ERA has not provided analysis of the likely level of participation under each model and therefore which is the most effective for competition. The Corporation's industry consultation suggests a strong preference for contracts with fixed payments to create bankable contracts. (Corporation Submission on Further Consultation Report, pg 5).

Discussion

The Corporation argued that its industry consultation has indicated there to be a strong preference for contracts with fixed payments to create bankable contracts. This is unsurprising as contracts with fixed payments transfer demand risk from the private sector, via the Corporation, onto consumers. This leaves the private sector with a low risk return on its investment.

One of the advantages of the IPE model is that it has the ability to transfer some of this investment risk back onto the private sector. This would likely result in not only alternative contracting arrangements on currently identified projects, but also the development of alternative supply and demand options which more explicitly account for and manage demand risk. Furthermore, it would lead to additional rigour in the assessment of the time at which it is appropriate to develop projects and a different sequencing of those projects.

Box 7 sets out an example of two alternative contracting arrangements for the provision of water from a desalination plant.

Box 7 Examples of contractual arrangements

a) Proponent 'A' bids $15 million for a development phase of three years and a construction time of three years. Following construction all risk would be taken by the IPE through a contract for supply based on capacity payments to cover their capital costs (irrespective of actual production) and output priced to cover the marginal cost of production.

b) Proponent 'B' bids $20 million for a development phase of three years and a construction time of three years. However, risk would be shared between the IPE and proponent through a contract for supply based on capacity payments to cover 50 per cent of their capital costs and output priced at a 25 per cent premium to their marginal cost of production.

The most appropriate contract would depend on the expectation of the future need for the plant. If it were known with certainty that the plant would be used consistently, Proponent A offered a more attractive deal. However, if there was uncertainty regarding the need to use the plant, Proponent B's offer could well be more appropriate. There are legitimate questions of insurance against both the risks of having inadequate supply capacity and the risks of spending a lot of money on capacity that later proves to be either unnecessary or not necessary for some years after delivery.

The Authority does not consider that an approach whereby proponents compete on risk sharing arrangements would have an impact on the willingness of the private sector to participate. However, if a private sector proponent was unwilling to accept any demand risk, this would simply be reflected in its bid and would subsequently be one of the criteria against which it would be compared with competing bids.

3.4.4.9 The location of the IPE

Submissions

The Independent Market Operator (IMO) stated that:

- The role of the IPE, as indicated in the Draft Report, has close parallels to that of the IMO. In particular, the key function of both entities is to ensure that the operation of their respective markets, water or electricity, is undertaken in a manner that effectively meets clearly defined market objectives. The imperative for independent operation is a key to both entities and clearly differentiates them from most other entities within the respective industry segments.
- The IMO already has processes and procedures in place to certify electricity generation and demand side management proposals. These could form a sound basis for consideration of water supply and water use management proposals.
- There would be significant overhead costs in establishing and operating the IPE as a separate entity. Irrespective of the approach adopted, some staff with essential core ·water" competencies will be required by the IPE. However, incorporating the IPE as part of another entity, such as the IMO, would minimise the requirements for Board members, operation and support staff, and associated office accommodation and other infrastructure.
- The IMO acknowledges that it would need to expand its knowledge base to incorporate the specific skills associated with water planning. However, the existing IMO staff has a strong background in long term forecasting, computer modelling and in following strict operational procedures.
- The IMO notes that recruitment and retention of staff with the requisite strong analytical background is proving particularly difficult, for both Government and industry, in the present economic climate. The broader range of responsibilities that would exist within a combined IPE-IMO entity would provide a broader range of experience and opportunities than could be provided by either of the stand-alone entities. This would be a major advantage for staff recruitment and retainment. Combining the two entities would also allow the more efficient utilisation of relevant staff.
- Combining the functions of the IPE and the IMO would parallel the operation of the ERA in its water and electricity regulatory functions. The IMO, however, notes that if the IMO's and IPE's responsibilities were combined, issues such as Ministerial portfolio responsibilities, industry funding and general administrative issues would have to be considered and appropriately addressed.

(IMO Submission on Draft Report, pg 2).

The DTF stated that:

> Further analysis of the cost and benefits of merging the role of the IPE with that of the Independent Market Operator (IMO) for electricity will need to be undertaken, although this may be outside the scope of the ERA's Inquiry. The DTF notes the intuitive appeal of the merger, primarily due to the economies of scale in regards to the maintenance of in-house expertise, particularly those associated with planning and procurement functions. (DTF Submission on Draft Report, pg 2).

Discussion

The Authority considers the IMO to be a logical location for the IPE given the similarities between the two organisations' roles. This view was supported by the IMO and DTF. However, DTF noted that additional analysis was required which may be outside the scope of this inquiry.

In additional to the natural synergy in functions, the benefits of locating the IPE within the IMO include:

- avoiding the need to establish a new entity;
- sharing joint overheads; and
- benefits in terms of the ability to recruit and retain staff.

In addition, a co-location would assist in addressing concerns regarding the lack of a continuous role for the IPE (which the Authority considers unfounded) as jointly locating the two organisations would allow staff to be deployed between electricity and water functions based on workload fluctuations.

3.4.4.10 Experience in other jurisdictions

Submissions

Rio Tinto suggested that more detailed consideration be given to:

> Experience with the establishment and operation of similar bodies in other sectors and jurisdictions. (Rio Tinto Submission on Draft Report, pg 7).

Discussion

There are similarities between the proposal to introduce an IPE and the recently established Queensland Water Commission (**QWC**).

For example, the QWC is responsible for:[38]

- developing long term water supply strategies including identifying future sources;
- overseeing investment in infrastructure such as pipelines and dams;
- developing and implementing demand management programs including:
  - setting water efficiency targets; and
  - water restrictions; and
- providing advice to the Government.

[38] www.qwc.qld.gov.au

In addition, the QWC is responsible for implementing the Queensland Government's water reform package which is centred on the development of a water grid in South East Queensland. This grid is similar to the IWSS in the South West of Western Australia.

It is not envisaged that all of the functions undertaken by the QWC would be carried out by the IPE. However, the establishment and successful operation of the QWC demonstrate that it is possible to separate the development of supply and demand options from the operation of the network. These functions were once considered to be domain of the incumbent water utility.

3.4.4.11 Changes to institutional arrangements

Submissions

The DoW argued that:

> during a period of greater uncertainty in water supply planning and availability the transition to the IPE model offers the potential to be disruptive and the change process could result in a more complex and uncertain management environment that would need to be carefully managed by the Water Corporation and the DoW. (DoW Submission on Further Consultation Report, pg 2).

Discussion

The DoW argues that the introduction of the IPE would be disruptive during the current period of uncertainty. On this matter, it is worth noting that the Second Seawater Desalination Plant (**SSDP**) is expected to be completed in 2011. The development of this source (even before completion) ensures that there is unlikely to be a major water shortage in the next several years. The development of the SSDP provides an opportunity to introduce the IPE with minimal disruption.

As a general proposition, options-based planning can perform best when done outside of tight time constraints – because these tend to render non-viable a series of other attractive options. It also tends to offer the greatest value when there is the greatest uncertainty.

While it may be argued that the SSDP postpones or even alleviates the need for an IPE, the Authority does not consider this to be the case. Rather, and as noted in the discussions above, adopting an options modelling approach implies an ongoing role. This role includes continually monitoring developments and updating the combination of supply and demand options as additional information comes to hand. In addition, there are a range of immediate and continuing tasks for which the IPE would be responsible. These include:

- developing a detailed inventory of all current supply sources and demand management programs;
- developing a detailed supply/demand model with the assistance of the Corporation;
- investigating the costs and benefits of various existing supply and demand programs including water restriction and rebate regimes; and
- running procurement processes for additional supply and demand options as required.

3.4.4.12 The theory of an IPE and experiences in other industries

Submissions

The Corporation argued that:

> The ERA has taken a theoretical position based on the efficiency of markets and what may discourage participation in a perfect market rather than what will happen in practice. (Corporation Submission on Further Consultation Report, pg i).

Discussion

It was argued that the Authority was relying on theoretical market models regarding the development of as yet unproven innovative options. Similar concerns were raised prior to the restructuring of electricity markets. The experiences in the Wholesale Electricity Market (**WEM**) in Western Australia and the National Electricity Market (**NEM**) in the Eastern States are worth considering.

The WEM was established in 2006. The establishment of the WEM allowed for the introduction of private sources of electricity generation. However, to cater for the circumstance that no private sources were developed in time to meet demand, a backstop option is identified which is considered by the IMO to be the most cost effective next source option. To date, the backstop option has yet to be developed as alternative sources have been established. Each of these sources has been assessed to be more cost effective than the 'centrally planned' source identified by the IMO.

A similar situation has occurred in the NEM where numerous small gas-fired 'peaking plants' have been introduced. These sources produce relatively expensive electricity on a per megawatt basis. However, their introduction has been the most cost effective way of meeting supply shortfalls. This is because they avoid the need for large capital expenditures which may lay dormant for a significant proportion of the time (in effect waiting for demand to catch up with the excess supply). The introduction of these alternative sources has avoided the need for governments to develop sources previously identified as the most cost effective.

However, the Authority notes that there are obvious differences between water and electricity. For example, WSAA note that:

> The current interest in developing urban water markets in Australia is understandable. The provision of urban water services has all the features of a network industry and the establishment of wholesale and retail markets in other network industries naturally suggests that the costs and benefits of similar reforms in this industry should be researched and evaluated. In this regard, the ERA's generally cautious assessment as reflected in its recommendations is to be commended. It is important not to blindly follow an assumption that what model works well in the electricity industry will automatically work in the urban water industry. Although there are many similarities between the two industries there are also important differences. For instance, water is heavy and it is energy intensive and expensive to transport it large distances compared to electricity. Furthermore, water from different sources will have different qualities and it is essential to protect public health that water quality risks are managed. These risks do not exist in the electricity industry. (WSAA Submission on Further Consultation Report, pg 1).

The Authority is conscious of the differences between the two industries. As noted by WSAA, the Authority is not suggesting a restructure of the like that has occurred in electricity where generation, transmission & distribution and retail have been separated. Rather, it is proposing the introduction of an entity which would take advantage of the type of competitive pressures which have developed for generation while avoiding the need for

a total restructure. The Authority considers that the IPE model proposed is a conservative yet practical approach which recognises the differences between the two industries. It does this while ensuring increased competition in the development of alternative supply source and demand management options.

3.4.4.13 Competition between potential suppliers

Submission

The Corporation stated that its model:

> maintains a level of competition on the most prospective sources for a longer period of time as it allows the Corporation to maintain an association with more than one consortium and therefore competitive tension up to awarding the contract. (Corporation Submission on Further Consultation Report, pg iii).

Discussion

The Corporation has argued that its model allows it to maintain an association with more than one consortium for longer than under the IPE model. It argues that its model can therefore take advantage of additional competitive pressures relative to the IPE model. However, care has been taken to design the IPE model in such a way that if the Corporation is successful in gaining funding to prove-up its preferred source(s), there is no difference from the Corporation's perspective between the current model and the IPE model (this is a point acknowledged by the Corporation and discussed further below). As such, the claim that there is a lesser degree of competitive tension in the IPE model would appear to be incorrect.

One of the main benefits of introducing the IPE model is to increase competitive pressures in the identification and development of innovative options. This is done by identifying when a shortfall is likely to occur and testing the market to see what alternatives can be developed. The Corporation as well as the private sector would then have the opportunity to come up with innovative ways of rectifying the imbalance. This differs from the current arrangements where the private sector has limited opportunity to develop alternatives.

The Corporation's argument appears to be that if the IPE were faced with a decision between an alternative supplier or the Corporation's bid, the Corporation would have to finalise the terms and conditions of its bid without being able to undertake its prequalification and competitive tendering process as is the case currently. However, it should be noted that the Corporation's prequalification and competitive tender process applies only to significant source options. The lead time the IPE would require for such sources would ensure that if the Corporation had been successful in gaining approval to prove-up its source, it would have sufficient time to undertake its prequalification process.

3.4.4.14 Conflict of interest

Submission

The Corporation stated that:

> The ERA has chosen to ignore the Corporation's advice that we would develop a source proposal under the IPE model to ensure security of supply and that this would necessarily result in a genuine conflict of interest that would discourage private participation. (Corporation Submission on Further Consultation Report, pg 14).

In addition, the Corporation stated that:

> The ERA has attempted to merge the Corporation's model with the IPE model to suggest that we wouldn't need to bid. The problem with this approach is that if the IPE selects the Corporation's option to be developed then there is no difference between the IPE model and the Independent Panel model, and if the IPE doesn't select the Corporation's option at any stage, the Corporation will still have to develop an option to ensure security of supply and there will be a conflict of interest. (Corporation Submission on Further Consultation Report, pg 14).

Discussion

The Corporation argued that it would have a conflict of interest under the IPE model as it would continue to develop a source proposal regardless of whether or not it was successful in gaining funding from the IPE to prove-up and develop its source. By continuing to develop a proposal, the Corporation argues that it would have a conflict of interest in assisting the IPE assess alternative bids as it may be invited to do under the IPE model.

Under the IPE model proposed, the IPE would seek bids from prospective source and demand management providers. It would then undertake a degree of due diligence on the options brought forward. It would then select the most promising to fund for further investigation. The IPE would make certain that the range of options developed would ensure security of supply. As such, there would be no need for the Corporation to continue to develop a source outside of the IPE process. It would therefore not be conflicted when assisting the IPE assess a project.

In addition, the IPE could call upon the Corporation to play a role in assessing the technical capacity and integration costs of alternative proposals. This would help to reassure the Corporation that sufficient options were being developed.

The Corporation has also stated that it no longer wishes to own future new sources.[39] This reduces further the potential for any conflict of interest to arise where the Corporation has been called upon by the IPE to provide advice.

The Corporation also argued that a weakness of the IPE model is that if the IPE selects the Corporation's proposal, there is no difference between the IPE model and the Independent Panel model. The Authority considers the incorporation of the Corporation's approach in the IPE model to be a significant strength of the IPE model. This incorporation ensures little disruption to the current arrangements while at the same time allowing for benefits from increased private sector participation.

3.4.4.15 Uncertainty

Submissions

The Corporation stated that:

> Companies have indicated a willingness to participate and allocate their best teams under the Corporation's proposed prequalification process. The added uncertainty of the IPE process is likely to discourage participation. (Corporation Submission on Further Consultation Report, pg ii).

[39] Water Corporation Submission on Issues Paper, pp 7-13.

Discussion

The Authority does not consider that the introduction of the IPE will increase uncertainty or discourage private sector participation. Rather, the establishment of a single independent entity to manage all aspects of supply and demand procurement will consolidate these functions and increase certainty for prospective participants. The IPE will release publicly a detailed supply and demand projection model as well as regular information on upcoming requirements. The process by which the IPE reaches its conclusions will be transparent and subject to merit and judicial review. Therefore, the Authority considers that the IPE will increase certainty for the private sector and thus encourage participation.

However, should the private sector show a reluctance to participate in the IPE process, the incorporation of the Corporation's model within the IPE framework ensures that, at worst, the status quo is retained. This is achieved while offering significant upside potential from the development of innovative alternatives.

3.4.4.16 Information asymmetry

Submissions

In response to the Further Consultation Report, the Corporation stated that:

> The ERA has failed to recognise that the information asymmetry between the Corporation and the private sector and the IPE lies in the underlying knowledge and understanding of the distribution system and its constraints, not the supply/demand projections. This asymmetry cannot be overcome by the creation of an IPE and therefore remains a problem to be addressed by the IPE model. The Corporation's procurement model overcomes this problem by removing the Corporation as a competitor. This is not a solution that is prudently available to the IPE model. (Corporation Submission on Further Consultation Report, pg 11).

Discussion

Under the IPE model, a detailed supply/demand model would be developed and released publicly. The model would provide the private sector with increased information and thereby increase the opportunity for it to develop alternative options. However, the Corporation states that the supply/demand model is not the major source of information asymmetry. Rather, it argues that knowledge of the distribution system and subsequently integration costs is the major information asymmetry. The Corporation argues that this is overcome under its model by removing itself as a competitor (and presumably therefore it does not face a conflict of interest in providing this information). It argues that this cannot be done prudently under the IPE model.

As the Corporation has recognised that the IPE model incorporates the Corporation's model (see the discussion regarding a conflict of interest), there should be no difference between its model and the IPE model.

3.4.4.17 Conclusion

The IPE model addresses all practical concerns raised in submissions on the Draft Report and Further Consultation Report.

The IPE offers a practical approach to ensuring security of supply is maintained at least expected cost. It achieves this without any major structural reforms of the like experienced recently in the electricity industry. Rather, the Authority has been mindful of

the differences between the two industries and has explicitly taken into account these differences when designing the IPE model.

The IPE model is similar in many respects to the water industry model adopted in South East Queensland. It also shares similarities with the Reserve Bank model. Furthermore, the practical parallels between the IMO's role in electricity and the IPE's potential role in water offer obvious synergies.

In addition, the IPE model incorporates the Corporation's proposed procurement model. As such, the introduction of the IPE offers little downside risk. However, the ability to identify alternative innovative options means there are potential significant upside risks in terms of cheaper source and demand options. These cheaper options will in turn reduce bills for customers.

4 Third Party Access

4.1 Terms of Reference

The Terms of Reference require the Authority to consider:

- opportunities for enhanced competition by introducing third party access regimes to existing water and waste water-related infrastructure, including identifying appropriate principles and mechanisms to implement efficient and effective regimes.

4.2 Recommendations

The Authority makes the following findings and recommendations.

Recommendations

2) A State-based third party access regime be implemented in Western Australia. Third party access to natural monopoly infrastructure can be obtained under the provisions of the *Trade Practices Act 1974*. However, this can be a time consuming and costly process which can discourage market entry. As such, a State-based third party access regime should be introduced to allow for easier access.

3) A simple State-based third party access regime, which can be refined later, be implemented given the unknown demand for access. The New South Wales State-based third party access regime provides a good model.

Third party access regimes allow entities other than an infrastructure owner to use infrastructure to deliver services to customers. Third party access regimes:

- set out the terms and conditions of use; and
- outline prices (or how prices are to be determined) that may be charged by the infrastructure owner for access.

Access regimes allow alternative service providers to compete with infrastructure owners in services that are not characterised as being natural monopolies. This competition delivers benefits to customers through the provision of alternative and more competitively priced products and services.

Third party access regimes are common in the gas, electricity and telecommunications industries. However, they are less common in the water and wastewater industry.

In England and Wales, the water licensing regime allows competing suppliers to develop their own water source and use existing supply networks to supply water to their own customers, or to buy bulk water supplies from other suppliers and sell it on to customers.

In Western Australia, access is most likely to be sort for the provision of wastewater services and subsequently, the provision of recycled water.

There are no current institutional or legislative restrictions on seeking third party access to water and wastewater networks in Western Australia. Under current arrangements the process is as follows:

- A potential entrant seeking access to infrastructure of national significance can approach the infrastructure owner and attempt to negotiate access.
- If this fails, they can apply to the National Competition Council (**NCC**) to have the infrastructure declared under Part IIIA of the *Trade Practices Act 1974*.
- Should the approach to the NCC be unsuccessful or the findings of the NCC be rejected by the relevant Minister, who has the discretion to set aside the NCC findings, the access seeker can apply to the Australian Competition Tribunal for review of the decision not to grant access to the infrastructure.

However, this may be a long and expensive process. As an alternative to the national access regime under the *Trade Practices Act 1974*, the *Competition Principles Agreement* also provides for State-based regimes for third party access to infrastructure.[40]

The development of a State-based access regime would reduce significantly the time taken and cost incurred in gaining access. This would therefore reduce this barrier to entry.

The development of a State-based regime, in which the general terms and conditions of access are clear to access seekers in advance, could reduce considerably the risks and delays in obtaining access. Further, while a State-based regime would be based on national competition policy principles established in the *Competition Principles Agreement*, it can also be tailored to specific circumstances within the State.

The first State-based regime for third party access to water and wastewater infrastructure has been introduced recently in NSW (the *Water Industry Competition Act 2006*). The general approach adopted in this legislation is summarised in Box 8.

[40] Sections 6(2) to 6(5) of the *Competition Principles Agreement* set out the principles with which State-based access regimes should comply. Appendix 4 contains these sections of the *Competition Principles Agreement*.

Box 8 General Approach to Third Party Access in New South Wales' Water Industry *Competition Act 2006*

Third party access agreements between a service provider and an access seeker in NSW can be reached in two ways:

1) through an access undertaking, proposed by the service provider, setting out the terms and conditions of access and agreed to by the access seeker; or

2) through Ministerial declaration of infrastructure to be covered by an access agreement.

Access undertakings

- The service provider may give the Independent Pricing and Regulatory Tribunal (IPART - the regulator) an access undertaking specifying the access terms and conditions.
- IPART consults publicly and decides, in accordance with the principles in the Act, whether or not to approve the access undertaking.

Coverage declarations

- The service provider, access seeker or Minister may apply to IPART for coverage of infrastructure to provide a service requiring third party access.
- IPART consults publicly on the application and provides a report to the Minister within four months of the application stating whether the declaration principles in the Act have been met and recommending the terms and period for the coverage declaration.
- The Minister decides on the coverage application within six months of the application.
- IPART publishes the Minister's decision and keeps a record of infrastructure services that are deemed covered.
- The service provider may also apply to IPART to have an existing coverage declaration revoked. The process for determination is the same as for coverage declarations.

Binding non-coverage declarations

- The service provider may apply to IPART for a binding non-coverage declaration in relation to infrastructure which is yet to be built, or is not currently used to provide water or wastewater services. The process for determination is the same as for coverage declarations.
- The Minister may revoke binding non-coverage declarations at the request of the service provider or if the application contained false, misleading or insufficient information.

Access agreements and determinations

- Access agreements set out the terms and conditions of access for infrastructure services that are the subject of either coverage declarations or access undertakings.
- Where no agreement can be reached between the parties, these terms are set out in an access determination. In the event of a dispute, either party may apply to IPART for arbitration (by IPART or an arbitrator appointed by IPART).
- The arbitrator, having regard to the principles in the Act, including pricing principles, makes a determination within six months of the dispute application to IPART, which is published on IPART's web site.
- Within three months of coverage, the service provider submits a cost allocation manual to the regulator for approval and must keep separate accounts for declared infrastructure services.
- IPART maintains a public register of infrastructure services that are the subject of coverage declarations, binding non-coverage declarations and access undertakings.

Sewer mining

- Sewerage service providers may lodge a notice with IPART setting the terms for sewer mining from the infrastructure.
- Disputes between the service provider and sewer miners may be arbitrated by IPART or an arbitrator appointed by IPART, with the determination published by IPART within six months of the dispute application.

The Authority considers a regime based on the New South Wales model to be appropriate for Western Australia as it:

- addresses concerns regarding the time taken and cost involved in seeking access under the current arrangements via the *Trade Practices Act 1974* and thereby facilitates additional market entry.

- is a simple model which can be refined later based on demand for access.

However, care should be taken to ensure that the access arrangement developed does not impact upon the ability of an IPE to ensure the provision of security of supply at least expected cost. As such, proposals for access that impact on the range and flexibility of options available would need to be assessed appropriately.

The Authority notes that the New South Wales regime is expected to be operational from July 2008. Following its introduction, the New South Wales Government is expected to approach the NCC and seek to have the access regime certified as 'effective'. If the NCC considers the regime to be effective and the relevant Commonwealth Minister concurs, the water industry infrastructure will be only subject to the State-based regime and can no longer be declared under the *Trade Practices Act 1974*.

The Authority considers it appropriate to refrain from finalising the Western Australian regime until the New South Wales regime has been declared effective, to allow for any minor alterations to be incorporated.

4.3 Discussion

4.3.1 Development of a State-Based Third Party Access Regime

4.3.1.1 Alternative approaches to gaining access

As noted previously, there are no current institutional or legislative restrictions on seeking third party access to water and wastewater networks in Western Australia. However, gaining access under the current arrangements can be a time consuming and costly exercise for a potential market entrant. The risk is that the time, cost and uncertain nature of the process may be discouraging potential market entrants. For example, one company which has sought access under the current arrangements is Services Sydney in New South Wales. Box 9 describes the process.

Box 9 Services Sydney vs Sydney Water

- In March 2004, Services Sydney lodged an application with the National Competition Council under Part IIIA of the *Trade Practices Act 1974* for access to infrastructure owned by Sydney Water. Services Sydney planned to construct a tunnel system to transfer sewage from the Sydney Water network, treat it and sell the treated water.
- In December 2004, the NCC recommended that Services Sydney be granted access.
- The Minister did not respond within 60 days, which under the legislation was deemed a refusal to declare the relevant services.
- Services Sydney appealed against the NSW Government's deemed decision to the Australian Competition Tribunal (**ACT**).
- In December 2005, the ACT handed down its decision, upholding the NCC decision.
- Separately, IPART published a final report in October 2005 on its review of water and wastewater service provision in Sydney. The report recommended that a State-based access regime for water and wastewater infrastructure be developed.
- Services Sydney and Sydney Water failed to agree on access prices. In November 2006, Services Sydney appealed to the Australian Competition and Consumer Commission (**ACCC**) to arbitrate the dispute.
- In July 2007, the ACCC published its final determination on the access dispute, recommending that a retail minus avoidable cost methodology be applied to determine access prices.
- Services Sydney initially appealed to the ACT against the ACCC determination, but has since withdrawn its appeal.

The development of a State-based access regime would reduce significantly the time taken and cost incurred by a potential alternative service provider in gaining access and would therefore reduce this barrier to entry.

The *Competition Principles Agreement* sets out the national competition policy principles. These principles allow for the development of State-based third party access regimes as an alternative to the national access regime under the *Trade Practices Act 1974*.

4.3.1.2 Features of a State-based access regime

For a State-based access regime to conform with the principles of the Competition Principles Agreement, it must comply with sub-clause 6. As in the case of the Commonwealth third party access regime, State-based access regimes must apply to services:

- provided by means of infrastructure which is not economically feasible to duplicate the facility;
- where access is necessary to allow effective competition in downstream or upstream markets; and
- where the safe use of the facility can be ensured at an economically feasible cost and where there are appropriate safety regulations in place.[41]

Sub-clause 6 also states that a State-based access regime should incorporate the following principles:

[41] Competition Principles Agreement sub-clause 6(1) and 6(3)(a).

- a process for seeking coverage of certain infrastructure;
- negotiated access and agreement on terms and conditions between the infrastructure owner and access seeker wherever possible;
- independent arbitration of disputes in the event of a failure to agree on the terms and conditions of access;
- a process for appeals;
- a process for revoking or modifying an access arrangement; and
- separate accounting arrangements for parts of the businesses covered by the access regime.

Sub-clause 6(4)(i) requires that a dispute resolution body must take into account:

- the legitimate business interests of the infrastructure owner;
- the costs to the owner of providing access (but not any losses arising from increased competition);
- the economic value to the owner of any additional investment by the access seeker;
- the interests and obligations of the owner and others in relation to contracts for the use of the facility;
- requirements for the safe, reliable and economically efficient operation of the facility;
- the benefits to the public from competition.

4.3.1.3 Submissions

The Authority proposed the introduction of a State-based third party access regime in its Draft Report. Submissions were generally supportive of the introduction such a regime. For example, the Corporation stated that it supported the draft recommendations and findings in relation to a State-based third party access regime.[42] Similarly, the UDIA stated that the:

> suggested access regime to allow the private sector to develop projects outside the formal procurement process is also supported. It is important to note here that third party access can only be sustained if it genuinely delivers a cheaper alternative to customers. (UDIA Submission on Draft Report, pg 2).

The DoW also expressed its support for a State-based third party access regime[43] as did the CCI. The CCI stated that it:

> fully supports this recommendation because we believe a third party access regime allowing private sector suppliers to distribute water either through a bulk supply contract with Water Corporation, or direct to individual customers should be established.
>
> A state-based regime that is fair, robust, will minimise delay and clearly articulate water quality standards is preferred. The tariff structure should be transparent and CCI recommends that an industry regulator should be responsible for regulating access to water and waste water distribution infrastructure. The Authority should perform this role, similar to its roles in the regulation of gas, rail and electricity infrastructure. (CCI Submission on Draft Report, pg 3).

[42] Water Corporation Submission on Draft Report, pg 1

[43] Department of Water Submission on Draft Report, pg 12.

Several of the submissions raised specific matters in relation to the introduction of a State-based third party access regime. The Department of Health stated that it:

> supports competition however; caution should be exercised to ensure that any organization or utility entering into the provision of a water service has both the capacity and competency to deliver a safe product to the Western Australian public. (Department of Health Submission on Draft Report, p 2).

Rio Tinto stated that it:

> reserves its position regarding the application of a third party access regime to water infrastructure in Western Australia. More evidence needs to be provided by the ERA. RTIO encourages the ERA to undertake additional stakeholder consultation on this issue once further evidence has been gathered, and prior to the release of the Final Report to Government. (Rio Tinto Submission on Draft Report, pg 10).

In addition, Rio Tinto argued that the Authority should consider a number of characteristics identified by the Institute for Research into International Competitiveness. These included that:

- Alternative suppliers must exist and be competitive:
- Energy costs must be inexpensive relative to accessing water from local sources
- Infrastructure must have spare capacity available
- Limitations to local supply
- The natural monopoly component must be isolated
- Variations in water quality

(Rio Tinto Submission on Draft Report, pg 9)

The DTF stated that:

> Consideration must also be made for the type of infrastructure the access regime will cover, in keeping with the theory that it should be only the services provided by natural monopoly infrastructure. As the WC's existing distribution infrastructure will undoubtedly be able to service all levels of foreseeable demand at a lower cost than any competing infrastructure, it would be apparent that the distribution infrastructure forms the basis of any access regime. However, access to other infrastructure, such as dams or wastewater treatment facilities may encourage competition through private sector participation. (DTF Submission on Draft Report, pg 10).

In addition, the DTF stated that it:

> understands that there has been some discussion of a national third party access regime for water infrastructure. The DTF would cautiously welcome such a proposal, but would need to consider the issue in more detail before providing further comment. (DTF Submission on Draft Report, pg 10).

The DTF suggested that:

> an access regime should be developed in concert with wider legislative reforms to the water and wastewater services sector. (DTF Submission on Draft Report, pg 11).

The CPSU stated that it supported a third party access arrangement:

> in the event a third bulk water supplier is interested in accessing the potable water supply system. However given the very high infrastructure cost and a limited new bulk water market to unregulated customers, it is unlikely that such an application will proceed. Generally large commercial and industrial customers and irrigation business will prefer to secure self supply arrangements. Accordingly the ERA should develop a set of Third Party

> Access Guidelines for potential new customers to determine if their proposals are feasible. Only if the proposal is feasible and serious, then should negotiations be undertaken on a case by case basis. (CPSU Submission on Draft Report, pg 2).

4.3.1.4 Discussion of submissions

The introduction of a State-based third party access regime would reduce the barrier to entry that exists as a result of the likely time and cost associated with gaining access under the current arrangements. Basing the regime on that adopted in New South Wales would reduce the cost relative to developing a regime from first principles. In addition, the Authority considers that a regime modelled on that adopted in New South Wales addresses many of the concerns raised in submissions.

The Department of Health expressed concerns that all access seekers have the necessary competency to ensure that the health and safety of the system would not be compromised. The Authority considers that any third party access regime, whether it be State or nationally developed, would ensure that all access seekers meet required competency standards.

The Authority has not conducted a further round of consultation regarding the introduction of a State-based third party access regime as suggested by Rio Tinto. This is because an access regime exists already as any alternative supplier can seek access through the national processes.

The intention of introducing a State-based regime is to reduce the time and cost to a potential alternative supplier associated with gaining access as opposed to considering whether or not access should be granted. In addition, the Authority envisages that there would be a public consultation process as part of the development of the bill. Furthermore, the New South Wales regime requires that the regulator consult publicly when considering applications regarding access.

The Authority notes the matter raised by the DTF regarding to which items of infrastructure the access regime should apply. Under the New South Wales regime, the terms and conditions of access are assessed on a case by case basis. This includes whether or not to grant access.

As such, it is problematic to attempt to identify a detailed list of assets to which access would apply at this point in time. However, the Authority notes Section 23 of the New South Wales *Water Industry Competition Act 2006* which sets out the declaration criteria as follows:[44]

> the following criteria are "declaration criteria" in relation to an infrastructure service provided by water industry infrastructure:
>
> (a) that the infrastructure is of State significance, having regard to its nature and extent and its importance to the State economy,
>
> (b) that it would not be economically feasible to duplicate the infrastructure,
>
> (c) that access (or an increase in access) to the service by third parties is necessary to promote a material increase in competition in an upstream or downstream market,
>
> (d) that the safe use of the infrastructure by access seekers can be ensured at an economically feasible cost and, if there is a safety requirement, that appropriate regulatory arrangements exist,

[44] It should be noted that water industry infrastructure refers to water and sewerage (or wastewater) infrastructure.

> (e) that access (or an increase in access) to the service would not be contrary to the public interest.

In regard to the possible development of a national third party access regime as raised by the DTF, the Authority would support tentatively such an approach. However, the Authority considers that it may be a significant amount of time until such a regime is developed. In the interim, a State-based regime should be developed. There are obvious benefits from including the development of such a regime within the wider water industry legislative reforms taking place currently in Western Australia.

The Authority notes and supports the view of the CPSU regarding adopting a cautious approach to the development of a State-based regime given the uncertainty about the extent to which an access regime will be utilised. The adoption of a pre-existing regime, that can be modified later if warranted, avoids the cost associated with developing a regime from first principles.

4.3.2 Access Pricing

4.3.2.1 Alternative approaches to pricing access

A key component of the terms and conditions of a third party access regime is how access prices are calculated. Ideally, access prices should achieve the objective of making access profitable only to those new entrants which can provide the service more efficiently than the existing service provider.

There are a wide range of possible approaches to setting access prices. Broadly, they can be classified as being either cost-based ('bottom-up') or retail-minus ('top-down').

Cost-based approaches

In cost-based approaches, access prices are calculated on the basis of determining the cost incurred by the incumbent in providing access. Cost-based approaches include determining access charges on the basis of short-run marginal cost, long-run marginal cost, or a 'building block approach' where access charges are calculated on the basis of the entrant's share of the average cost of providing the infrastructure service.

The use of either a short-run marginal cost or long-run marginal cost approach implies that the access seeker is making no contribution to shared network costs. As such, the Authority does not consider the use of either to be appropriate as it may lead to the under-recovery of costs incurred legitimately by the network owner.

This view is shared by the Department of Treasury and Finance:

> While marginal cost pricing is commonplace when determining and setting consumer prices, the DTF is not aware of regimes which make use of SRMC and LRMC pricing in setting access prices.
>
> Certainly, the DTF would caution against third party access prices based on SRMC. SRMC allows for recovery of day-to-day costs, but does not allow for the recovery of capital expenditure – an obvious disincentive for the incumbent to engage in ongoing expenditure on new and more efficient technologies and infrastructure as well as replacement infrastructure.
>
> When used as a method for determining access prices, the LRMC may also lead to an under recovery of the common costs of providing access and the sunk costs made by the incumbent service provider. It is the view of the DTF that LRMC pricing would act as an effective subsidy to market entrants, at the expense of the incumbent service provider. (DTF Submission on Issues Paper, p13).

In Western Australia, a uniform tariff policy exists for residential water consumption up to 300 kilolitres per annum in the South West, while prices for residential wastewater services are based on property values. A potential problem with a cost-based building block approach, given the existing tariff structures, is 'cherry picking' by new entrants of customers in areas that are inexpensive to serve.

For example, wastewater treatment costs may be less in areas that are close to sea outfalls, or some areas may have shorter average lengths of sewers because of higher population densities. New entrants could therefore choose to supply only those customers whose service costs are less than the prevailing tariff, leaving the incumbent to serve the remaining highest cost customers and at risk of revenue loss.

Retail-minus approaches

Retail-minus approaches take the retail price as the starting point and subtract from that an estimate of the costs avoided by the incumbent as a result of no longer providing some services.

The ACCC used a retail-minus approach in its decision regarding access to some of Sydney Waters sewerage infrastructure.[45] IPART also used a form of retail-minus approach in its investigation into the provision of water and wastewater services in Sydney.[46] While the ACCC and IPART approaches differed slightly, it is understood that IPART are in the process of implementing the ACCC approach.

Under a retail-minus approach, the access price is based on the existing structure of retail prices and subtracts from these the costs which are avoided by the incumbent due to the provision of the service by the new entrant. Thus, a service could be provided by the new entrant if it is able to supply it at less cost than the incumbent. The retail-minus approach therefore is compatible with the existing retail tariff structure.

While the retail-minus approach would avoid the problem of cherry picking, it does require that retail prices are set in a way that is reflective of the costs of providing the services. This is problematic in Western Australia in the case of wastewater service prices, which for residential customers are based on Gross Rental Values and are not cost reflective.

If retail prices are not effectively regulated to ensure that they are cost reflective, there is a risk that a retail-minus approach could lock in monopoly rents to the incumbent service provider.

For example, if current prices are above actual costs, a retail minus approach locks in the payment of this difference to the incumbent. From a cost efficiency point of view, however, retail-minus pricing ensures entry occurs only if savings in avoidable costs can be achieved.

4.3.2.2 Submissions

The DoW stated that it was:

> generally supportive of the recommendations and notes the proposed adoption of the 'retail minus' access pricing regime in the services Sydney decision, in order to discourage 'cherry picking' of profitable operational areas.

[45] ACCC (19 July 2007), *Arbitration Report: Access Dispute Between Services Sydney Pty Ltd and Sydney Water Corporation*.

[46] IPART (October 2005), *Investigation into Water and Wastewater Service Provision in the Greater Sydney Region: Final Report*.

> The DoW recognises that there is no practical alternative to the use of the 'retail minus' approach for the encouragement of third-party access in Western Australia but encourages the Authority to examine the effectiveness of the approach. (DoW Submission on Draft Report, pg 12).

WACOSS stated that:

> Given the assumption of private involvement (including ownership) in the provision of bulk water services, WACOSS is generally supportive of a third-party access regime as discussed in the Authority's findings. WACOSS strongly asserts, however, that additional research needs to be conducted regarding the pricing of such access to ensure that private bulk water services represent real and significant savings for the incumbent provider and by extension, the general public who they serve. Such analysis would require the consideration of the system integration costs that would be involved in the third-party access regime. (WACOSS Submission on Draft Report, pg 7).

4.3.2.3 Discussion of submissions

The Authority acknowledges the concern about the potential for cherry picking under a cost-based building block approach. The Authority recognises the merits of a retail-minus approach in avoiding these problems and its compatibility with existing tariff structures.

However, the successful implementation of a retail-minus access pricing regime in Western Australia would depend on the effective regulation of retail prices to ensure that tariffs reflect the costs of service. This is necessary to guard against locking in monopoly rents.

In the case of wastewater services this would require a move away from GRV-based prices to prices that reflect the costs of wastewater service provision. It would also be necessary to minimise transaction costs and to carefully consider the calculation of avoidable costs so that efficient entry is encouraged and not deterred.

The Authority notes the DoW support for a retail minus approach. The Authority supports the view of WACOSS that the calculation of access prices should ensure that only efficient entry is encouraged. The correct calculation of access prices, including an assessment of all costs including integration costs, will ensure that only alternative suppliers which can offer actual real savings to customers will enter the market.

The Authority considers a retail-minus approach to be appropriate for a State-based third party access regime for Western Australia.

5 Water Trading Mechanisms

5.1 Terms of Reference

The Terms of Reference required the Authority to consider:

- other reforms to the water and wastewater market which may enhance competition, including the establishment of water trading mechanisms and the benefits, costs and issues associated with them (e.g. inter-regional trades, market dominance and water hoarding).

5.2 Findings and Recommendations

The Authority makes the following findings and recommendations.

Findings and Recommendations

4) An effective water trading regime be established as a matter of urgency. There is scope for water trading and buy backs in the South-West, including from the Harvey Water region, the Gnangara Mound and Wellington Dam.

5) Various roles and functions of the Department of Water be addressed to ensure the operation of an effective water trading regime. Adjustments are required to:

- Water Allocation Management Plans;
  - Neutral auctioning processes be used when considering the reservation of water for future public suppliers.
  - All entitlement holders be treated equally, especially when considering imposing reductions to allocations.
- Licensing procedures;
  - Neutral market mechanisms be used when issuing water licences.
- Efficiency targets;
  - Administratively determined efficiency targets be avoided when approving Source Development Plans.

6) Water Access Entitlements be issued to individuals rather than to an irrigation cooperative to remove the barrier to trade.

7) Exit payments not be levied on irrigators who choose to leave an irrigation cooperative, notwithstanding any pre-existing contractual obligations.

8) The current legislative review by the Department of Water address concerns related to the:

- development of Water Allocation Management Plans;
- issuance of water licences;
- approval of Source Development Plans;
- issuance of Water Access Entitlements to irrigation cooperatives and not individuals; and
- imposition of exit payments by irrigation cooperatives on those choosing to leave a cooperative.

9) All significant users within a catchment, including pine plantations, be included when developing Water Allocation Management Plans and issuing water licences.

10) Finalisation of the Gnangara Mound Water Allocation Management Plan and Gnangara Mound Sustainability Strategy are critical. Finalisation of the Yarragadee Aquifer Water Allocation Management Plan is also critical. In the meantime, an effective water trading market should be developed.

11) The concerns regarding water hoarding appear to be limited. The *Trade Practices Act 1974* appears sufficient to address any concerns should they arise.

Water trading facilitates the transfer of water from lower value to higher value uses. This may be for use as a source of bulk water within the IWSS. Alternatively, it may be for the production of higher value commodities. Regardless, an effective water trading regime is necessary to ensure water is put to its highest value use.

A water trade occurs when an individual or entity with a Water Access Entitlement trades this entitlement to another party. Trades are voluntary and therefore occur only when they are in the interests of both parties. Trades may be undertaken on either a temporary or permanent basis.

- A temporary trade may be for a single or several seasons.
- A permanent trade involves the full legal transfer of ownership of the entitlement from one entity to another.

Water trading should not adversely impact the environment as before tradeable Water Access Entitlements are granted, water is set aside for the environment.[47]

5.3 Discussion

5.3.1 Scope for Water Trading

5.3.1.1 Background

In preparing its findings and recommendations as part of this inquiry, the Authority engaged Resource Economics Unit (**REU**) to undertake a review of water trading issues in Western Australia.[48] REU identified that while the potential for water trading is limited in regional and remote areas of the State, successful water trades have already taken place within the IWSS, with a transfer of water from irrigation to use as potable water. In addition, the report found that there is scope for further such trades. The areas identified

[47] Some water entitlements are granted assuming a proportion of the entitlement returns to the environment via recharge. This can be taken into account when approving trades.

[48] Resource Economics Unit, *Inquiry into Competition in the Water and Wastewater Services Sector: Water Trading Issues,* 2007. The report is available on the Authority's web site.

as being most able to support water trading were the three irrigation districts within the Harvey Water irrigation area (Waroona, Harvey and Collie Irrigation Districts), Wellington Dam and the Gnangara Mound.

5.3.1.2 Submissions

The Department of Health stated that it:

> is concerned that any water supply that is accessed is 'fit for purpose', and that it will be utilised is such a manner as not to pose a risk to public health. The development of suitable governance structures is required before trading occurs. (Department of Health Submission on Draft Report, p1).

The Corporation stated that it:

> disagrees with the Authority's analysis [that there is water available]. Abstraction from the Gnangara Mound must be reduced to a sustainable level. In addition, the potential for additional water from Harvey Water or Wellington Dam is limited. (Corporation Submission on Draft Report, pg 11).

Harvey Water stated that:

> In early 2004 Harvey Water proposed to government the permanent trade of 39.1 GL (or 25.5% of total licence) of water with 17.1 GL coming from the Harvey and Waroona Irrigation Districts and 22 GL coming from the Collie River Irrigation District (CRID). To date, only the 17.1 GL (or 20% of the Waroona/Harvey licence) trade proposal has been accepted due to water quality issues with water from Wellington dam. However this opportunity remains on the table.
>
> The 17.1 GL permanent trade proposal also included the additional temporary trade of 21.6 GL over 4 years which has also occurred.
>
> These trades are the first and largest on a percentage of licence basis between regional and urban Australia. (Harvey Water Submission on Draft Report, pg 5).

The DoW stated that it:

> is in general agreement with the recommendations [as contained in the Draft Report]. However, there is limited evidence of significant water trading in Western Australia and it is doubtful if an effective trading system will be operable before 2009.
>
> As noted by the Authority, in the event of a low rainfall winter in 2008, the trading opportunities identified may not offer the necessary supply of water to justify the deferral of other water source developments and provide the ongoing security of supply.
>
> Furthermore, trading involving groundwater is subject to an impact assessment and usually involves the establishment of new source treatment and delivery infrastructure that would require a significant lead time and additional capital resources.
>
> Beyond the prescriptive provisions of the legislation, trade in water will be facilitated by factors such as participants having sufficient information on the water commodity to be traded and there being well understood rules to guide vendors and purchasers.
>
> **Availability of 'additional' bulk sources**
>
> While there may appear to be considerable additional sources of bulk water available from Harvey Water, the Gnangara Mound and the Wellington Dam, consideration needs to be given to a number of factors before any trading is to occur from these areas. Such matters to consider include:
>
> - the overall strategic plan for the area in question and the associated sustainable limit of supply;
> - the location of associated infrastructure to enable access to the water and if not available, the cost of developing the infrastructure; and

- the competing demands for the water, such as for environmental purposes.

(DoW Submission on Draft Report, pp 9-10).

T Busher stated that:

> Presently of the 7 dams Harvey Water draws water allocation from only 2 are connected to the IWSS. A complete lack of physical infrastructure restraints trade to non irrigation user except those industries located in proximity to the Harvey Water region and its infrastructure. (T Busher Submission on Draft Report, pg 1).

In addition, T Busher noted that:

> Even post the Harvey Water Piped Project 130 gigs of the cooperatives license will remain held within dam storages that are not potable water quality rated. Without comprehensive catchment management plans substantially restraining recreation, agricultural, industrial and residential activity no water stored in these locations can be used for potable purposes without significant increases in treatment required. This point was acknowledged by the Water Corporation (Aug 2007) as a significant impediment to any trade prospects. (T Busher Submission on Draft Report, pg 1).

5.3.1.3 Discussion of submissions

There was a degree of debate in submissions regarding the potential for future water trades. However, such debate is problematic as it is difficult to second guess the volumes of water that would become available should an effective trading regime be established.

The Authority considers that where feasible, barriers to trade should be removed to allow trades to occur where there are benefits from doing so. The Authority considers there are sufficient volumes of potentially tradeable water to justify the development of an effective trading regime. In addition, Western Australia is required to develop an effective trading regime under the National Water Initiative.

As an indication of the possibility for trading to occur, the Authority notes the following in relation to the three areas identified as having significant scope for water trading: the Harvey Water area, the Gnangara Mound and the Wellington Dam region.

Harvey Water Area

- Harvey Water submitted that to date 20 per cent (or 17.1 GL) of its Waroona/Harvey licence had been traded on a permanent basis for use in the IWSS along with an additional temporary trade of 21.6 GL over four years (5.4 GL/year). Furthermore, the report commissioned from REU indicated that the expected annual return on water (the value of irrigation water to farmers within the Harvey Region and hence the minimum price a farmer would require to trade their entitlement) was sufficient that even when transport and treatment costs were considered, the likely cost of this water as an alternative IWSS bulk water source would be competitive relative to alternative options such as desalination and new groundwater sources. As nearly 80 per cent of water in the Waroona/Harvey licence (approximately 85 GL) remains untraded and the value of this remaining water is such that it may be attractive to trade, there remain opportunities for further trades from the Harvey Water area.

- The recently released 'Water Forever: Options for our Water Future' by the Corporation states that there is an opportunity for a further 7.0 GL trade due to additional investment in on-farm water efficiency.[49]

- As noted in the submission from T Busher, only two of the seven dams from which Harvey Water source water are connected to the IWSS, indicating the potential for further trade opportunities (subject to the necessary infrastructure – a point discussed below).

Gnangara Mound

- The Corporation abstracts for use in the IWSS approximately 45 per cent of the total annual water abstracted from the Gnangara Mound. This represents approximately 150 GL/year. Other significant users include horticulture and agriculture (18 per cent) and pine plantations which cover approximately 12 per cent of the area of the Mound. It is likely that the value of water for use in the IWSS is higher than that used by horticulture, agriculture and by pine plantations. As such, there is potential for mutually beneficial trades between users on the Gnangara Mound.

Wellington Dam

- Harvey Water stated a willingness to trade 22 GL from Wellington Dam for use within the IWSS but that the trade is yet to proceed due to water quality issues.

- The Corporation has identified Wellington Dam as a potential source option in 'Water Forever: Options for our Water Future' but notes difficulties due to the current use of the dam for recreational purposes and the complexity of the surface and groundwater resources.

- The Minister of Water Resources recently commissioned a report on the potential opportunity to use water from the Collie-Wellington Basin as a source of bulk water for the IWSS.[50] The Corporation has stated that the DoW is responsible for further investigation of the recommendations of the report.[51]

The Authority considers there to be sufficient potential sources of water which could be accessed via trading to justify the development of an effective water trading regime. An effective water trading regime also supports the use of water buy backs for environmental or demand management purposes as it allows those affected the opportunity to trade for additional volumes.

Infrastructure constraints

A point raised in several submissions related to the constraint a lack of infrastructure may place on the opportunity for water trading. The DoW and T Busher submissions argued that a lack of infrastructure would restrict the ability to trade water, especially for use in the IWSS. While infrastructure may be needed in many circumstances to enable a water trade, it is a secondary issue to that of establishing an effective trading regime.

[49] Water Corporation, *Water Forever: Options for our Water Future,* April 2008, pg 55.

[50] Collie-Wellington Basin Water Source Options Steering Committee (May 2007), *Water Source Options in the Collie-Wellington Basin*, Final Report to the Minister for Water Resources.

[51] Water Corporation, *Water Forever: Options for our Water Future,* April 2008, pg 56.

Following the establishment of an effective trading regime, those considering undertaking a trade would be able to weigh up the overall benefits and costs associated with the trade. The overall assessment would include costs associated with the construction of infrastructure if required. Such an approach would ensure that trades proceed where overall benefits outweigh costs.

5.3.2 Roles and Functions of the Department of Water

5.3.2.1 Background

The DoW is responsible for many functions that are important for the sustainable management of the State's water resources. These functions include its role as the lead agency responsible for identifying and developing a detailed scientific understanding of the water resources across all regions of Western Australia. Furthermore, the DoW is responsible for ensuring the sustainable use of these resources through its role in allocating this water and monitoring usage.

The legislation governing the DoW's role in water resource management is currently being reviewed, with the role of the DoW in relation to water procurement likely to change. The Authority has identified a number of current and prospective roles of the DoW which may result in the DoW undertaking functions in addition to that of ensuring water resources are used sustainably. These functions may inadvertently be counterproductive to the promotion of competition and therefore the establishment of the most effective water procurement and allocation model. These roles relate to:

- The manner in which Water Allocation Management Plans are formulated. Specifically;
  - the approach adopted to the reservation of water for future public suppliers; and
  - the unequal treatment of existing users;
- The issuing of water licences.
- The approach taken to source development plan approvals.

These matters are discussed in turn.

5.3.2.2 Water Allocation Management Plans

Water Allocation Management Plans are formulated to match water supply and demand on a "fit-for-purpose" basis. In cases where a water resource is close to fully allocated (and in the Yarragadee aquifer), the DoW has stated that it will allocate water via expressions of interest, auctions, or merit selection. This differs from the first-in first-served approach it adopts elsewhere.

The risk the DoW faces by using methods other than neutral auctioning processes is that it may inadvertently allocate water to those who do not value it most. This may result in the inefficient use of water. In addition, adopting a process other than a neutral auctioning process will undermine the development of a competitive market for the supply of water sources. Two specific areas of concern have been identified by the Authority. These relate to:

- the reservation of water for future public suppliers; and

- the unequal treatment of existing users.

The reservation of water for future public suppliers

The Authority has concerns regarding the reservation of water for future public water suppliers. For example, the South West groundwater areas water allocation management plan proposes to set aside water for public water suppliers, excluding other users from seeking an entitlement to the resource.[52]

Setting aside water is problematic as it is difficult to gauge accurately the value future generations will attach to the resource. In addition, technological progress will increase the range of options available in the future. For example, recent years have seen the development of desalination and recycled water technologies. These water factories will continue to improve in efficiency. New technology will also continue to be developed.

Furthermore, history has demonstrated that each successive generation has achieved a higher living standard than the previous one. This increases the ability of future generations to explore options that were once thought prohibitively expensive.

Submissions

The DoW stated that:

> The protection of future public water supply requires land use management and the restriction of some activities which might degrade the quality of surface and/or groundwater. Further, the DoW does not regard access to and the supply of potable water as a pure economic good. The basic human right of access to affordable water for future generations also needs to be taken into account in water policies. It is a value judgement as to whether this generation has the right to use up lower cost water supply options and leave future generations with the higher cost options, especially in regional areas where there are higher infrastructure costs. (DoW submission on Further Consultation Report, pg 1).

The Corporation stated that:

> The ERA's faith in a market based approach again appears problematic where they advocate exclusively using a neutral auction process for planning and issuing water allocations.
>
> …
>
> The benefit of long-term planning underlying water resource allocations needs to be properly considered. Potable water supply needs safe, protected sources, and if these resources are not reserved for future use, sub-optimal use in the short-term may result in the need to develop alternative higher cost sources in the long-term. Protection of public drinking water supplies is a paramount customer and community accountability of water utilities.
>
> (Corporation Submission on Further Consultation Report, pp 5-6).

The DTF stated that:

> Water should not be reserved unless there is a clear rationale for preventing consumption.
>
> Unless DoW adopts a market-based mechanism for allocating additional water, it is unclear how DoW can allocate water to "high value uses".
>
> (DTF Submission on Further Consultation Report, Attachment 1, pg 2).

[52] Department of Water, *South West groundwater areas water management plan – allocation, Draft for public comment,* February 2008, pg 43.

Discussion

The Authority recognises the value of long term planning. However, the Authority does not consider the use of market based approaches to exclude the ability to plan for the longer term. Rather, the Authority considers that long term planning can benefit greatly from the use of market based allocation methods. The adoption of such methods can help reveal the underlying value of resources, limiting the need to make value judgements about whether setting aside water for future use represents its most appropriate use.

The Authority has concerns with the role of the DoW in setting aside water for potable use as it is second guessing the commercial value of the water. A preferable approach would be to leave the role of determining the value of water for potable use to water service providers. The DoW's role could then focus on identifying the sustainable supply of water and neutrally auction the consumptive pool (as distinct from planning for how water is used). Water service providers and other prospective users could then bid for access rights. This would ensure water is used in its highest value use.

Unequal treatment of existing water users

In the draft Gnangara groundwater areas water management plan, the DoW is proposing to require the Corporation to reduce its abstraction from the Gnangara and Jandakot systems. However, it is not imposing similar reductions on other users.[53] The Authority is concerned that this unequal treatment of users may create distortions in water use and could potentially be counterproductive to the development of the most effective water procurement and allocation arrangements.

Submissions

In a letter to the Authority, the DoW stated that: [54]

> The Corporation is in a privileged position in that it is the only licensed service provider that has access to both the superficial and confined aquifer(s), with other service providers only having access to the superficial aquifer. Secondly, and as previously explained, the Corporation is in deficit and has to pay back over drawn water to the Mound under the variable draw-down rule which accommodates higher draw downs during periods of lower rainfall adversely affecting supply options from other (surface) water sources.

In the Further Consultation Report, the Authority identified the concerns noted above. In response, the DoW stated that it:

> does not accept the view that the Water Corporation has been treated unfairly in any of its administrative practices for the Gnangara Mound or elsewhere. To the contrary, the Water Corporation is in a privileged position compared with other water licence holders. (DoW Submission on Further Consultation Report, pg 1).

The DTF noted that:

> Without a reverse auction/tender buyback process occurring (as required by paragraph 79(ii) [of the National Water Initiative], those who value water highly may be forced to reduce consumption under DoW's proposal, while low value consumption continues unabated. This methodology reinforces allocative inefficiency. (DTF Submission on Further Consultation Report, Attachment 1, pg 2).

[53] Department of Water, *Gnangara groundwater areas, Water management plan, Draft for public comment,* February 2008, pp 49-53.

[54] Department of Water letter to the ERA dated 11 April 2008.

Discussion

The Authority supports the DoW's intention of attempting to ensure that the water resources of the State are used in the most efficient manner. However, as with respect to the DoW's role in reservation of water supplies for public use, the Authority considers that this can be best achieved via the use of market mechanisms.

In relation to the Gnangara and Jandakot systems, market mechanisms could be designed to achieve the required reduction. For example, all entitlements could be reduced by the same proportion to ensure the necessary reduction is achieved.[55] Trade between users would then ensure that water was used by those who valued it most. Such an approach would avoid the need to make an arbitrary judgement regarding which users should reduce their consumption.

The Authority considers that an approach whereby all users are treated equally and given the opportunity to trade should they so wish is the best way of ensuring water is used for its highest value use. Such an approach would also alleviate any concerns regarding the current approach being counterproductive to the promotion of competition and assist in the establishment of an effective water trading regime. Furthermore, it would simplify the current administratively intensive arrangements.

5.3.2.3 Licensing

In considering applications for water licences, the DoW currently requires a licence holder to demonstrate they have used their entitlement before allowing a trade. While this may be considered fair because it prevents windfall profits accruing to existing license holders, denying such trades will restrict potential trades and lead to the inefficient use of water. Likewise, reallocating this water administratively will be less efficient than having it reallocated via a trading regime based on commercial decisions.

Similarly, the DoW recoups unused allocations to prevent windfall gains. The recoupment and reissuing of unused allocations can override the ability of market mechanisms to allocate water to those who value it most.[56] It might also override the ability of market mechanisms to efficiently allocate risk. For example, a water user may wish to hold an entitlement in excess of their normal demands as insurance against the risk of drought. This may be appropriate if the water user had invested heavily in water reliant crops.

Submissions

The DoW has acknowledged that:

> in an effective water market the DOW would have to change a number of administrative policies which would be overly prescriptive and interventionist. Any impact on the way in which the DoW currently administers the water allocation planning function is a matter to be worked out in context at the time. (DoW Submission on Further Consultation Report, pg 1).

Discussion

The Authority notes the acceptance by the DoW that it will have to change a number of its administrative policies to ensure the development of an effective water trading market. The Authority considers this should be done as a matter of urgency.

[55] Taking into account the relative use of the superficial and confined aquifer.

[56] Similarly, recouping an unused allocation and auctioning it, while ensuring water is used by those who value it most, provides a windfall gain to the DoW.

The Authority considers there to be a clear role for the DoW to ensure water resources are not over allocated, are not being used in a way that compromises water quality and are not being used in an environmentally unsustainable manner. Restrictions on trades may be appropriate in these circumstances. However, in all other circumstances, trades should be permitted.

5.3.2.4 Source Development Plan approvals

Under the proposed water resources legislative changes, a service provider would need to have its source development plan approved by the DoW. Before granting approval, the DoW will require the service provider to demonstrate, among other things, that: [57]

- it has targets for per capita use; and
- the demand management measures it will implement to achieve these targets.

With respect to these targets, the DoW stated in the South West groundwater areas water management plan that:[58]

> Any future water use for public drinking water will be required to meet water use efficiency targets in line with the per person consumption targets (<100kL/person) identified in the State Water Plan (DPC 2007). Although the target is specifically for Perth based household consumption the department encourages all water service providers to meet this target across the State.

The State Water Recycling Strategy developed by the DoW and Department of Premier and Cabinet requires the increased use of recycled water. The Strategy sets a target to recycle 20 per cent of wastewater by 2012 and 30 per cent by 2030.[59]

On a further matter related to water use targets and water efficiency, Objective 9 of the South West groundwater areas water management plan developed by the DoW states that:[60]

> Water service providers are expected to develop plans to achieve and implement improvements to water delivery and efficiency (usage per capita) by 20% by 2011.

Submission

The DoW stated that:

> A central theme of both the State Water Strategy and the National Water Initiative is to recycle and use water wisely, including the State Government having a water recycling target. Market mechanisms have great difficulty in accounting for these type of environmental and social outcomes. (DoW Submission on Further Consultation Report, pg 2).

[57] Department of Water letter to ERA dated 28 February 2008.

[58] Department of Water, *South West groundwater areas water management plan – allocation, Draft for public comment,* February 2008, pg 34.

[59] Department of Water and Department of Premier and Cabinet, *State Water Recycling Strategy: An overview,* June 2008.

[60] Department of Water, *South West groundwater areas water management plan – allocation, Draft for public comment,* February 2008, pg 54.

Discussion

The Authority supports the move towards using water wisely. Reducing the *inefficient* use of water is a legitimate way in which to ensure the supply/demand balance is maintained. However, reducing water consumption and/or increasing the efficiency of water use requires an investment by the service provider or consumer to reduce their water use. While it is efficient to invest in cheap ways of reducing water use, there is a point at which the cost of achieving water savings becomes greater than the cost of accessing the next available source.[61]

Requiring a service provider to meet an administratively-determined efficiency target (such as 100 kL per person per year target) may lead to either under or over investment in water efficient technology. This can in turn distort the options adopted to meet the supply/demand balance and subsequently increase costs.

A more appropriate long-term way of ensuring efficient investment is by allowing a market to develop whereby investment is guided by the cost of investing in water efficiencies relative to the cost of other ways of ensuring water supply and demand are balanced.

Similarly, the application of the Perth 100 kL per person per year target to areas outside of Perth is problematic. A 'one size fits all' approach is likely to lead to an inefficient outcome. For example, there may be areas where water is not in scarce supply. In such areas, there is no need to impose any form of restriction on use or requirement to increase efficiency. The imposition of such restrictions or requirements would incur a significant loss to consumers for no benefit.

Likewise, care should be taken when requiring reductions in water usage such as the 20 per cent per capita reduction the DoW is applying to water service providers. Once again, this may not be the most effective way in which to ensure security of supply. Such an approach may result in perverse outcomes such as significant unwarranted investment in water efficiency technology.

For example, consider a service provider with sufficient, relatively cheap groundwater sources. Requiring the service provider to abide with efficiency goals or meet recycling targets will result in increased costs for customers for no environmental benefit.

Specifically with regard to the South West, the DoW projects in the draft South West regional water plan that even without the use of efficiency targets, there is not expected to be a shortfall in water supply until approximately 2025.[62] Under these conditions, care must be taken to ensure that any investment in efficiency measures is warranted.

The DoW argued that market mechanisms have difficulty dealing with environmental and social outcomes. The Authority considers ensuring appropriate environmental outcomes to be the legitimate responsibility of the DoW. In this regard, the DoW should identify the volume of water that can be taken from various sources without compromising the environment. Once this amount has been identified, there should be no need for the DoW to specify targets for levels of water consumption as the cost of alternative sources will determine the appropriate level of efficiency/recycling. As noted previously, imposing arbitrary targets can lead to the imposition of significant unnecessary costs.

[61] The next available source would be that which had gained all the necessary environmental approvals and could most cheaply be introduced to the system.

[62] Department of Water, *South West regional water plan: Strategic directions, draft for public comment,* June 2008, pg 10,

With regard to social outcomes, the Authority does not consider there to be any inherent social benefit from the use of recycled water relative to alternative water sources (assuming environmental concerns are addressed as discussed above). As such, society is benefited most by ensuring that security of supply is maintained at least cost. In order to achieve this, it is necessary to eliminate distortions where possible, such as arbitrary recycling targets.

5.3.3 Irrigation Cooperatives

There are two relevant matters to be considered with respect to irrigation cooperatives.

- Restrictions on the ability of individual members to trade.
- Whether or not exit payments are justified.

5.3.3.1 Restrictions on trade

Background

Water in the Harvey Water irrigation area is allocated currently to Harvey Water, the irrigation cooperative. The individual members then in turn own shares in the cooperative. As such, an individual irrigator does not directly own a Water Access Entitlement. Due to the cooperative being the holder of water allocations, the cooperative has the ability to limit external trades.

A similar arrangement exists within the Ord Irrigation Cooperative. However, while there are opportunities for external trades from the Harvey region for use in the IWSS, there is little opportunity for external trades from the Ord region.

Submissions

Harvey Water stated that:

> Restrictions by Harvey Water on individual external trade are soundly and sensibly based. There is a clear precedent where a thirsty neighbouring city managed to secure water from a few irrigators in an irrigation area leading to all the water eventually leaving such that the area is now a desert. This is the famous Owens Valley case in California. The movie "Chinatown" was based on this event.
>
> Harvey Water can see the exact same thing happening with the HWIA because if the trade price of water internally is $500 (or $200 or $30) per Megalitre and the external trade price from the only buyer in WA, which is urban, is an order of magnitude or more greater, then irrigators would be financially foolish not to participate.
>
> This would rapidly lead to all or the greater part of the irrigation water leaving the HWIA, never to return. In this case, the recent investment of around $100 million into a world class irrigation system is pointless and wasted and the food production capacity of the HWIA disappears. Current indicators are that the world is facing a crisis from food shortages and irrigation areas are the most efficient way to increase food production per unit of land area and per volume of water.
>
> This is a matter beyond mere economic theory considered in isolation but one which has political, social and regional economic considerations which must be taken into account. That is, do the state and national governments see the need for irrigated food producing areas or not? It is as well to remember that irrigated areas are only about 1% of the agricultural land area of Australia but produce about 35% of the food. Food security, food miles, food scarcity and similar modern considerations must impact on decisions made on

> irrigated agriculture, not just economic theory on markets. (Harvey Water Submission on Draft Report, pg 7).

The Ord Irrigation Cooperative stated that within its area of operation:

> The current trading philosophy (which is yet to be tried as we haven't had a trade take place) is that growers are only able to permanently trade 5 megalitres of their 17 megalitres per hectare allocation but are able to trade all 17 megalitres as a temporary trade. All trades need to be approved by the board of the Co-op, primarily to ensure that water isn't traded into an area where the infrastructure does not have the capacity to supply the trade or (in the case of permanent trades) to ensure we don't end up with stranded assets. (Ord Irrigation Cooperative Submission on Draft Report, pp 2-3).

The DoW stated that:

> The trade of water out of irrigation cooperative areas is a licensing matter and the DoW is currently investigating the issue as a part of its legislative reform program. The Authority is directed to the State's National Water Initiative (NWI) Implementation Plan for the latest discussion on this matter:
>
> 'An issue given priority under the NWI is removing barriers to trade within irrigation districts. Irrigation cooperatives currently dominate the delivery of surface water for irrigation purposes in Western Australia. Water irrigation licences are currently issued at the cooperative level, with individual irrigators holding shares in the cooperative in proportion to their entitlements of water. In addition, the current arrangements, in combination with the memorandum and articles of association of the irrigation cooperatives, allow the irrigation cooperatives to restrict sales of water by individual irrigators to external parties.
>
> The government has initiated a dialogue with the irrigation cooperatives to develop a mutually beneficial trading framework, taking account of social and regional development requirements.' (DoW Submission on Draft Report, pg 10).

The CCI stated that it:

> maintains that individuals should have the ability to freely trade water and strongly recommends that artificial restrictions on an individual's ability to trade water should be removed. (CCI Submission on Draft Report, pg 2).

Discussion of submissions

Water leaving an irrigation area

Harvey Water argued against allowing individual external trades on the basis that it could lead to irrigation water being traded by individual irrigators out of the area. Harvey Water stated that this may occur given that 'irrigators would be financially foolish' not to trade. This would be the case if they were able to receive a price for their water externally which was above that which they could receive within the cooperative.

The overriding principle is that water should be put to its highest value use. This will ensure society as whole benefits most from the use of the water. Restrictions on water trading can result in an overall loss in welfare.

An effective market economy provides customers with the right to decide what represents the highest value use. This occurs through customers deciding which goods and services to purchase.

In some cases, the highest value use of water may be for irrigation purposes. In other cases it may be for horticultural use while in others it may be for use as drinking water.

Regardless of its highest value use, restrictions on the trade of water may lead to its inefficient use.

Harvey Water argued that the restrictions it imposes are sensibly based as they ensure against water leaving the area. However, the external trade of water may in some instances represent its highest value use. As such, restricting trades could lead to an overall welfare loss for society. In other situations, irrigation may represent the highest value use of water which could see the trade of water into irrigation areas.

In addition, restricting or prohibiting the external trade of water will make irrigators financially worse off. This is because without restrictions the irrigator would have the choice to externally trade the water if they could sell it for more than they could receive internally.

Investment in assets

Harvey Water argued that if restrictions on external trades were removed, water may be traded out of the area. It argued that as a result of these trades, the recent investment in piping the network would be wasted.

The recent investment in the piping network can be described as a 'sunk cost'. That is, the investment has already taken place and decisions regarding use of the investment should be based on future considerations rather than previous investment.[63] As such, investment in piping the network that has already taken place should be ignored when making decisions regarding the most appropriate future use of the water.

Continued use of the network simply because it exists, as opposed to continued use because it represents the most appropriate decision based on current conditions, could lead to sub-optimal use of water.

Food security

Harvey Water raised the issue of food security and questioned whether 'state and national governments see the need for irrigated food producing areas or not?'.

A loss of local food production would occur only if water was traded from use in food production to some other use, such as for potable or industrial purposes. Trades which involved the transfer of water to higher value agricultural produce would see the value of food production increase.

In cases where water was traded away from food production, any subsequent shortfall in production would be met by alternative providers. These providers may be based in Western Australia, Australia or elsewhere in the world.

However, for products for which there is no ready substitute and a reasonably inelastic demand, such as fresh milk, there may be little impact on local production. Rather, any increase in the opportunity cost of water as a result of water trading would be reflected in higher milk prices.

[63] For example, consider a decision regarding whether to replace a clutch in an old car. The decision regarding whether to replace the clutch should be based on the expected value of the car after it has been replaced (including any ongoing repair and maintenance costs) rather than how much you have spent on repairing and maintaining the car in the past.

World food shortages

Harvey Water stated that current indicators show the world is facing a food crisis and that irrigation is the most productive way to produce food.

Food shortages would increase demand for food and subsequently the price. This would in turn increase returns to water and would therefore encourage the retention of water for food production.

Social and regional economic concerns

It is sometimes argued that local communities may be made worse off under an effective water trading regime. However, the removal of barriers to trading with external parties who have a higher willingness to pay for water actually provides a windfall gain to existing water entitlement holders and subsequently the local community.

This gain occurs as the higher opportunity value of water is capitalised into existing entitlements. Given that trading is voluntary, a trade would occur only if it was beneficial to the entitlement holder. As such, an entitlement holder can be no worse off under a trading regime and has the potential to benefit from trading.

An argument made against permitting trading is that some entitlement holders will 'cash-in' their entitlement and subsequently move away from the community. This argument applies only to situations where the opportunity exists for *permanent external* trades.[64]

With respect to the irrigation cooperatives in Western Australia, the opportunity for permanent external trades exists predominantly in the Harvey region. This opportunity exists as there is an ability to trade with the IWSS. However, the Harvey region is showing a significant net increase in population. For example, Harvey has experienced a population increase of 4.0 per cent during 2005-2006. Similarly, Dardanup (also in the Harvey Region) experienced an increase of 5.4 per cent.[65] This compares to an average increase in the South West of 1.8 per cent and an average across all of Western Australia of 2.1 per cent. Areas such as the Wheatbelt experienced a decrease of 0.3 per cent.

Ord Irrigation Cooperative

The Ord Irrigation Cooperative stated that it would permit a permanent trade of 5 GL out of the 17 GL allocated per hectare. However, it also stated that it would allow a temporary trade of the full 17 GL. The Authority considers that each individual member of the cooperative should be able to permanently trade their full entitlement should they so wish.

Disallowing permanent trades will impact upon investment decisions as it increases investment risk. For example, an irrigator wishing to invest in a water intensive crop may be unable to secure a permanent allocation. This inability to secure a permanent allocation would increase the risk of being unable to source water in the future, thus increasing the risk of the investment.

[64] Temporary trades (external and internal) have no impact as the entitlement holder remains in operation. A permanent internal trades may lead to farm consolidation and subsequently the reduction in the number of distinct farm businesses. However, this is normally associated with the sale of land as well as any entitlements and as such is unrelated to water trading arrangements. In addition, consolidation normally leads to increases in efficiency and subsequently profits.

[65] Department of Local Government and Regional Development, *Estimated Resident Population 1996-2006:* www.dlgrd.wa.gov.au/Publications/Docs/EstimatedResidentPopulation2006Summary.pdf

The Ord Irrigation Cooperative also stated that all trades needed to be approved by the board. This is to ensure that water is not traded into an area with insufficient infrastructure to cope with the trade and to avoid the stranding of assets. As noted previously, all trades will necessarily be subject to infrastructure availability. However, decisions regarding whether or not trades proceed should be based on commercial considerations, including any cost of infrastructure upgrades necessary to allow a trade.

On the point regarding stranded assets, the existing investment in the network is sunk and as such should be excluded from considerations.

Department of Water

The DoW stated that the trade of water out of irrigation cooperatives is a licensing matter and that Government was currently discussing the matter with the cooperatives. On this point, it is worth noting paragraph 60 (iv)(b) of the NWI, to which the Government is a signatory, which calls for the 'immediate removal of barriers to permanent trade out of water irrigation areas' to be phased in over several years with full and open trade by 2014.

The Authority considers it imperative there be an amendment to the DoW licensing arrangements to ensure Water Access Entitlements are issued to individual members of a cooperative. This will allow individual irrigators to trade out of the area should they so wish. This will remove the ability of the cooperative to veto trades and thereby allow individuals to trade where they consider there to be benefits from doing so.

In addition, water will be able to be transferred to its highest value use. Continued prohibition and/or restrictions on willing trades will lead to the inefficient use of water within a cooperative and some members of cooperatives being made worse off.

5.3.3.2 Exit Payments

Background

A concern cited often by irrigation cooperatives as a further reason for restricting external trades is that if an individual irrigator leaves a cooperative, the remaining costs of maintaining and operating the network are spread over fewer members. In other jurisdictions, it has been proposed that some form of 'exit' payment be made by an irrigator who trades externally their full entitlement on a permanent basis. The exit payment is made to offset some of the cost increase to remaining irrigators.

Submissions

The DTF stated that:

> it is important to recognise that any exit fees on irrigators will effectively act as a tax on irrigators, and hence be a disincentive to trade, therefore imposing a dead weight loss to the Western Australian economy. Furthermore, consideration of equity issues surrounding any requirement for an irrigator who chooses to leave a cooperative to subsidise the future costs of maintaining the distribution system they will no longer utilise is required. In regards to economic costs of exit fees, the DTF draws attention to the report Exit fees and interregional water trade, which suggests that "exit fees distort interregional trade and generate a net economic loss compared with free trade". Commensurate with these findings, the DTF would question the need to levy exit fees on individual farmers whom chose to trade out of irrigation cooperatives. (DTF Submission on Draft Report, pg 9).

Discussion of submissions

Efficiency

In an irrigation network, there are both fixed and variable costs associated with its on-going use. Exit payments are designed to offset for remaining members of the cooperative a proportion of the per capita increase in the ongoing fixed costs.

The Authority has considered the matter of an exit payment and concluded that such payments cannot be justified on efficiency grounds. In effect exit payments act as a tax on the sale of the entitlement and increase the price of water. This is turn reduces the volume of water traded to an inefficiently low level. The higher the exit payment, the greater the potential inefficiency.

However, exit payments are distinct from any payments that result from pre-existing contractual obligations. For example, if all irrigators in a cooperative had agreed to fund the upgrade of a piece of infrastructure to be paid for over a period of time, leaving the cooperative would not absolve an individual irrigator from this pre-existing commitment.

Equity

Given that exit payments cannot be justified on efficiency grounds, it is necessary to consider whether they are warranted based on equity considerations.

The opportunity to trade an entitlement will be most attractive to irrigators receiving the lowest return on their water. These would typically be irrigators engaged in lower value production on more marginal land. As such, an exit payment would effectively be a transfer from lower value irrigators to higher value irrigators. Therefore, on equity grounds there is no obvious case for exit payments.

Australian Competition and Consumer Commission

The ACCC has considered the matter of exit payments and noted that:[66]

> Exit fees that collect the net present value of all future revenue the infrastructure operator would have received to cover fixed costs may not take into consideration:
>
> - costs that may be avoided due to future rationalisation of the network
> - any specific (rather than common) costs of supplying that irrigator
> - previous contributions to reserves for future asset renewal, and
> - the benefit from any reduction in congestion of the delivery network
>
> Setting exit fees that fully insulate the infrastructure operator (and thus remaining irrigators) from the financial effects of water trade assumes that all of the third party effects should be borne by irrigators wishing to sell their water entitlements. As these third party effects arise because of legacy arrangements, consideration as to who should bear the cost requires a judgement as to what is fair and reasonable for all parties.

To address this matter of what is fair and reasonable, the ACCC developed a possible approach. Under the proposed approach, pricing is amended so that the fees levied by cooperatives consist of:

- an access fee which covers fixed costs; and

[66] Australian Competition and Consumer Commission, *A Regime for the Calculation and Implementation of Exit and Termination Fees Charged by Irrigation Water Delivery Businesses in the Southern Murray-Darling Basin,* 2006.

- a water delivery fee which covers variable costs.

Under the ACCC approach, members who wish to leave the cooperative pay a termination fee based on a multiple of the access fee. The proceeds collected from the termination fee offset a proportion of the increase in per capita fixed costs for remaining members. This approach was suggested as a transitional measure only with the ACCC recommending that the multiple be reduced over coming years and phased out by 2014.

The Authority does not endorse the introduction of exit or termination fees as it does not consider they can be justified on efficiency or equity grounds. However, the approach of the ACCC offers one way of addressing questions regarding what is fair and reasonable although it should be noted that the greater the termination fee, the greater the barrier to trade.

5.3.4 Inclusion of Significant Users

5.3.4.1 Background

Pine plantations on the Gnangara Mound cover approximately 12 per cent of the total surface area of the mound.[67] The water extracted by these plantations is significantly greater than that of native vegetation and as such they must be considered as an additional source of extraction and subject to the same licensing conditions as other water users.

The CSIRO in Perth has recently undertaken a study attempting to quantify the influence of these pine plantations on the Mound (currently unpublished). As an indication of the water usage of pine plantations, REU, based on discussions with the CSIRO regarding its research findings, concluded that replacing pine plantations with native Banksia woodland could result in a net gain in recharge to the aquifer of 42 GL/year[68], an amount similar to that to be produced by the second desalination plant.

5.3.4.2 Submissions

In the Draft Report, the Authority recommended that all significant users, including pine plantations, be taken into account when developing Statutory Water Management Plans and water allocations.

The Department of Agriculture and Food expressed support for this recommendation.[69]

The Corporation stated that:

> to facilitate an effective water trading regime, all significant users within a catchment should be taken into account when developing Statutory Water Management Plans and water allocations. (Corporation Submission on Draft Report, pg 1).

DTF stated that:

> Establishment of an effective water-trading regime in Western Australia requires that all who have a licence, entitlement or de-facto entitlement to water can participate in trading. This is necessary for the efficient allocation of water, as an entity with an entitlement to use water but not to trade it may mean that the water is locked up in a low value use, when

[67] Resource Economics Unit, *Inquiry into Competition in the Water and Wastewater Services Sector: Water Trading Issues,* 2007, pg 49.

[68] Resource Economics Unit (2007), p53.

[69] Department of Agriculture and Food Submission on Draft Report, pg 2.

> trading would be of material benefit. Trading should therefore be allowed on a permanent and short-term basis.
>
> Excluding particular consumers, such as horticulturalists or plantations will lead to a suboptimal outcome for Western Australia, as it would lead to locking up of a water resource. This prevents the high value use of the water achieved through a mutually beneficial trade. Consumers who do not have the ability to trade their entitlement as they see appropriate are provided with a perverse incentive to continue utilising water in a socially inefficient manner. The DTF is therefore supportive of the ERA's draft recommendation that all major users of groundwater should be included in a trading regime. (DTF Submission on Draft Report, pg 9).

The DoW stated that:

> The availability of water and, therefore, water markets will be relevant in areas where plantations use significant amounts of water.
>
> The DoW is working on an approach to incorporating plantations into water management decisions. This process will need to address the complex issues of a drying climate, comparison with the water use of original vegetation and the benefits of trees. (DoW Submission on Draft Report, pg 10).

5.3.4.3 Discussion of submissions

For an effective trading regime to exist, all significant users must be issued with allocations and have the ability to trade these allocations as they see fit. Such a regime is necessary in order for users to receive appropriate price signals regarding the value of water which will then lead to the transfer of water to its highest value use.

The matter of pine plantations has been recognised in the Gnangara Sustainability Strategy and is the subject of a dedicated investigation by the Forest Products Commission. The project information sheet states:[70]

> There have been numerous studies of the impact of maritime pine (*Pinus pinaster*) plantations on recharge into the surface aquifers of the Gnangara groundwater system.
>
> These studies have consistently demonstrated that dense plantations on the deep sandy profiles eliminate recharge to the aquifers. Conversely, maintaining the plantations at leaf areas below the point where maximum productivity is achieved allows recharge to occur.
>
> The requirement for timber from the Gnangara, Pinjar and Yanchep plantations to maintain the wood flow to the Wesbeam Laminated Veneer Lumber Plant is the subject of a State Agreement, which requires that wood flows are maintained until 2029.
>
> The agreement needs to be considered with any initiative that may increase the flow of water into the aquifer by changes to planned harvesting regimes. Adding to the complexity of the management of these plantations has been the discovery of an extensive European House Borer infestation. This has necessitated the selective clearfelling of some stands, which further reduces the options for modifying the overall management of the plantations.
>
> This project will consider opportunities to change pine harvest regimes to increase groundwater recharge.

The establishment of an effective trading regime will make the value of water explicit and allow for more informed decisions to be made regarding the most appropriate management of existing plantations.

[70] Gnangara Sustainability Strategy, Plantation Forestry Project overview, http://portal.water.wa.gov.au/portal/page/portal/gss/Projects/PlantationForestryProject

5.3.5 Finalisation of Water Management Plans

5.3.5.1 Background

In the Draft Report, the Authority noted that on the Gnangara Mound, finalisation of the Water Management Plan and the Gnangara Sustainability Strategy was critical and that in the meantime, an effective water trading market should be developed despite a degree of environmental uncertainty.

A analogous situation exists regarding the Yarragadee Aquifer.

5.3.5.2 Submissions

There was general support for the draft recommendations regarding water trading. However, few submissions addressed specifically the recommendation regarding the finalisation of Water Management Plans, the Gnangara Sustainability Strategy and the development of an effective trading regime in the meantime.

The Department of Agriculture and Food, the Corporation and the GEDC expressed support.

The CCI stated that:

> We believe that priority should be placed on progressing the water legislation package and urge the Authority to make a recommendation to this effect. (CCI Submission on Draft Report, pg 2).

The DoW stated that:

> The Gnangara groundwater allocation water management plan will be released in 2008. A new groundwater allocation management plan will be developed in line with proposed water resources legislation and a statutory water management plan is scheduled for completion by 2011. The Gnangara Sustainability Strategy will be finalised by 2009.
>
> While the existing Rights in Water and Irrigation Act 1914 does not prevent trade, it is recognised that trading is restricted due in part to the lack of a water access entitlement regime that separates land and water titles. The DoW's legislative reform program is working towards the introduction of legislation that will separate land and water titles and enable a more efficient water trading market. (DoW Submission on Draft Report, pp 10-11).

5.3.5.3 Discussion of submissions

Following the release of the Draft Report, the DoW released the draft 'Gnangara groundwater areas: Water management plan'.[71] [72] The Gnangara Sustainability Strategy is due to be finalised during 2009. It is expected that the water management plan will be updated based on the findings of the Strategy and a Statutory Water Management Plan will be completed by 2011. The Authority also notes the release of the draft 'South West groundwater areas water management plan – allocation' in February 2008.[73]

[71] DoW, *Gnangara groundwater areas: Water management plan*, February 2008.

[72] The Authority has raised some concerns with the plan. These were discussed in Section rrent level would continue to pay .

[73] Department of Water, *South West groundwater areas water management plan – allocation, Draft for public comment,* February 2008.

The finalisation of these reports and plans will provide the most comprehensive assessment of the hydrogeology of the Mound and South West, although it is highly unlikely that these reports and plans will resolve all environmental uncertainty. However, despite the likely existence of a degree of uncertainty, this uncertainty should not inhibit the establishment of an effective trading regime. Allocations and trading rules can be developed that take into account uncertainty while allowing for trades to take place.

The Authority notes Recommendation 3 of the Blueprint for water reform in Western Australia which was subsequently accepted by the Government:[74]

> That statutory water management plans be prepared using the best available scientific knowledge rather than with an expectation that absolute certainty is needed in order to finalise a plan. The precautionary principle should be applied if information is limited and subsequent reviews allow plans to be revised.

The establishment of an effective trading regime is important as it is possible that water sourced via trading on the Gnangara Mound or South West could be the most cost effective way in which to balance supply and demand within the IWSS. As such, the establishment of an effective trading regime, which takes into account any environmental uncertainty, could potentially benefit consumers of the IWSS greatly through reduced costs.

5.3.6 Water Hoarding

5.3.6.1 Background

The Terms of Reference referred to the potential involvement of 'water hoarders' in a water trading regime. A water hoarder can be described as an individual or entity which obtains a water allocation without any intention of consuming the water in the short term.

Water allocations are currently distributed on a 'first come, first served basis'. The concern regarding water hoarders is that following the replacement of the 'use it or lose it' provisions with consumptive pools, there may be an increased incentive for individuals or entities to obtain allocations without any intention of using the water.

5.3.6.2 Submissions

The Department of Agriculture and Food stated that it:

> considers the risk of water hoarding to be low. It is our understanding that under the Rights in Irrigation and Water Act where water licence allocations have not been used in the past and are not likely to be used, then the water manager has been recouping the unused amounts. This issue will be addressed through statutory and tradable water entitlements and trading under the proposed Water Resources Management Act. Once a substantiated value is established for water, people will hold entitlements at their cost, and the opportunity cost should drive investment and effective use. (Department of Agriculture and Food Submission on Draft Report, pg 3).

The DoW stated that it:

> has considered the issue of hoarding through its legislative reform program and has formed a preliminary view that the provisions in the Trade Practices Act 1974 are likely to be sufficient to protect against the risks.

[74] Water Reform Implementation Committee, *A blueprint for water reform in Western Australia: Final advice to the Western Australian Government, December* 2006 and Government of Western Australia, *Government response to A blueprint for water reform in Western Australia,* February 2007.

> It is further considered that hoarding would generally not be a commercially attractive activity as the cost of the water needed to manipulate a market would be prohibitive, especially while it was not being put to profitable use.
>
> Nevertheless, the DoW invites the Authority to investigate this matter further and looks forward to reviewing its final advice. (DoW Submission on Draft Report, pg 11).

The CCI stated that:

> Consistent with CCI's view on regulatory intervention, we maintain that constraints should only be placed on water trading where there is evidence of market failure.
>
> Where demonstrable market failure occurs, appropriate mechanisms should be used to counter cartelling, water hoarding and general anti-competitive behaviour. CCI does not support the imposition of unnecessary additional legislative burden, and considers that the provisions contained within the Trade Practices Act should sufficiently address and remedy anti-competitive conduct.
>
> CCI notes the Authority's role in monitoring the operations of the Wholesale Electricity Market. In this respect we understand that the Authority regularly reviews the market to ensure that it is effectively meeting the Wholesale Market Objectives, as defined in the Wholesale Market Rules. We consider there may be similar scope for the Authority to periodically review the operation of water markets and publicly report its findings. (CCI Submission on Draft Report, pg 3)

The DTF noted recommendation's 52 and 53 of the 'Blueprint for water reform in Western Australia' which state:[75]

> Recommendation 52. That no provision be made for anti-speculative regulation aimed at preventing the holding of water, provided that future releases of reserved water are made through either auction or tender.
>
> Recommendation 53. That monopoly abuse that may arise from the deliberate holding of water to prevent competing development be managed through existing fair trading and trade practices legislation.

In addition, the DTF noted the Government response to the 'Blueprint for water reform in Western Austalia' which states:[76]

> The Government supports the emergence of active water trading markets, and the release of water will be done as outlined in the response to Recommendations 6, 7 and 8.[77]
>
> To inform future water resources legislation, the Government will review existing legal mechanisms to determine whether these provide sufficient protection against anticompetitive behaviour.

The DTF concluded by stating that:

> Part IV of the Trade Practices Act 1974 should be sufficient to prevent anticompetitive behaviour.
>
> It must be recognised that speculation is not the problem, anticompetitive behaviour is. In a maturing water market, many players may benefit from water entitlement capital gain just as they may benefit from capital gain of their land. Only the irrational, or incapacitated, will not put their unused allocation on the market. (DTF Submission on the Further Consultation Report, Appendix pg 4).

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[75] Water Reform Implementation Committee, *A blueprint for water reform in Western Australia: Final advice to the Western Australian Government, December* 2006.

[76] Government of Western Australia, *Government response to A blueprint for water reform in Western Australia,* February 2007.

[77] Recommendations 6, 7 and 8 refer to manner in which water will be released, specifically allowing for different entitlement reliability, uncertainty regarding the establishment of consumptive pools and the use of market mechanisms for release of water.

5.3.6.3 Discussion of submissions

Accumulation versus anticompetitive behaviour

As noted by the DTF 'speculation is not the problem, anticompetitive behaviour is.' The point being made by the DTF is that there is nothing inherently wrong with an individual or entity accumulating entitlements. The accumulation of entitlements may be for reasons unrelated to anticompetitive behaviour such as increasing the certainty of being able to access water during dry periods.

Rather, the accumulation of entitlements becomes a problem if the entitlement holder is able to exercise market power when selling entitlements. However, the *Trade Practices Act 1974* has been designed specifically to guard against such instances.

The Authority notes the comments of the DoW, CCI and DTF which state that the *Trade Practices Act 1974* should be sufficient to address any anti-competitive conduct of this nature. The Authority supports this view and considers the provisions of the *Trade Practices Act 1974* to be sufficient to guard against anticompetitive behaviour.

However, should the *Trade Practices Act 1974* prove ineffective, the Western Australian Government could consider the introduction of specific legislation. This would require that a clear abuse of market power and a failure of the *Trade Practices Act 1974* be demonstrated.

Refusal to trade

A concern sometimes expressed relates to an individual or entity that does not use their full entitlement but for whatever reason elects not to trade the unused portion.

As noted by the Department of Agriculture and Food, once an effective trading regime has been put in place and a value for water established 'people will hold entitlements at their cost and the opportunity cost should drive investment and effective use.' Similarly, the DTF state that only 'the irrational, or incapacitated, will not put their unused allocation on the market.'

As these submissions illustrate, there is little to no value in gaining an allocation and either not using the entitlement or trading the remainder (on a temporary basis). This is especially the case if the entitlement is non-storable as the Authority understands the case to be with respect to groundwater entitlements. As such, there is no logical reason why entitlements would go unused.

However, if it could be demonstrated that significant volumes of water were going 'unused', these concerns could be addressed. For example, a compulsory 'spot' market to allow for the annual temporary trade of any unused allocations could be developed. In designing such a market care would need to be taken to ensure that no existing contractual rights and/or obligations were impinged upon.

As noted by the CCI, regulatory intervention should only be considered where there is evidence of market failure. As such, it would need to be demonstrated that the existing arrangements were not working adequately and that there was a clear case for establishing such a market given the imposition it would create for allocation holders.

6 Community Service Obligations

6.1 Terms of Reference

The Terms of Reference require the Authority to consider:

- arrangements for community service obligations paid by the State Government to service providers.

6.2 Findings and Recommendations

The Authority makes the following recommendation.

Findings and Recommendations

12) The Department of Treasury and Finance develop a policy to allow Community Service Obligation payments to be made to non-government entities.

A Community Service Obligation (**CSO**) arises when a government specifically requires a public enterprise to carry out activities relating to outputs or inputs which the enterprise would:

- not elect to do on a commercial basis and which the government does not require other businesses in the public or private sectors to generally undertake; or
- only do commercially at higher prices.

In the case of the water and wastewater services sector, CSOs are generally paid to ensure service provision in regional and remote areas of the State. CSOs are necessary as these areas are generally uneconomic at the current prices charged. Allowing CSOs to be paid to non-government entities would allow for competition between Government and non-government entities for the right to provide these service, thereby potentially reducing overall CSO payments.

DTF is responsible for the payment of CSOs. DTF should develop a policy that allows payment of CSOs to both Government and non-government entities. The policy should be generic in nature and as such be applicable to all instances where Government makes CSO payments, including for the provision of water and wastewater services.

A policy based on that in operation in Queensland and summarised in Box 11 is an appropriate model.[78]

[78] Queensland Treasury, *Community Service Obligations: A Policy Framework,* March 1999.

Box 11 A Summary of the Queensland CSO Policy Framework

The Queensland CSO policy framework consists of 5 stages

Stage 1

- Identifying candidate CSOs. This stage involves identifying the relevant outputs of the Department, what types of products and services are consistent with this output and whether there is potential for delivery of the service on purely commercial grounds.

Stage 2

- Specifying the CSO. This stage involves clearly defining the output required by the payment of a CSO.

Stage 3

- Select the CSO provider. This stage involves identifying potential service providers and selecting the most appropriate. This may be by way of an exclusive supplier agreement or some form of competitive process.

Stage 4

- Negotiate CSO contract. This stage involves negotiating the contract including how performance will be monitored.

Stage 5

- Review outputs. This involves a periodic review to determine if a CSO continues to be required and/or whether the current CSO remains appropriate.

6.3 Discussion

6.3.1 Background

In the context of water, CSOs are necessary due largely to the uniform pricing policy which requires that households throughout the State face the same price for water up to a specified usage limit. The cost incurred in service provision varies across the State. By requiring a uniform tariff, the revenue received from some areas is insufficient to cover costs associated with service provision. In these instances, a CSO is paid to cover the costs incurred in excess of revenue. CSOs are also paid in other instances such as revenue concessions for pensioners.

The Corporation's Statement of Corporate Intent for 2006-07 estimates the breakdown of the CSOs it receives as:[79]

- non-commercial country services $232 million
- new or changed CSOs [for new services] $24 million
- revenue concessions $80 million
- infill sewerage program $32 million

DTF is responsible for the payment of CSOs for water and wastewater services. As such, the onus of introducing competition into the payment of CSOs rests with the Department.

[79] Department of Water submission, p32.

DTF noted in its submission on the Issues Paper that:

> the current CSO policy would have to be revised by the DTF to allow payment of CSOs to private businesses on a case-by-case basis. This revised CSO policy could be similar to the policy that operates in Queensland.
>
> In Queensland, CSOs can be paid to private businesses as well as government owned commercial businesses. The Queensland Treasury prepared a paper in 1999 Community Service Obligations: A Policy Framework, which provides guidance on the broad aspects of the CSO policy.
>
> To qualify as a CSO, a product or service must be purchased by the Queensland Government, through the relevant Department(s) from an appropriate commercial business entity. While, in many instances, CSOs will be provided by Government-owned entities (e.g. Government Owned Corporations, Commercialised Business Units), there is also scope for such products or services to be provided by entities owned by other governments or private sector suppliers. However, this is ultimately a matter for the Government and it should be considered on a case-by-case basis, consistent with achieving the key objectives of the Queensland Government's CSO policy guidelines.
>
> (DTF Submission on Issues Paper, p17)

The Authority found in the Draft Report that an approach similar to that adopted in Queensland is likely to be appropriate for the provision of CSO payments in Western Australia. Under such an approach, the Government agency responsible for making the payment assesses the most appropriate manner in which to procure the service on a case-by-case basis. The Authority recommended that DTF develop a policy, perhaps similar to that in operation in Queensland, to explicitly allow for the payment of CSOs to non-government entities.

6.3.2 Submissions

The Corporation stated that it supported the draft recommendation and finding that:

> the Department of Treasury and Finance should develop a policy to explicitly allow for the payment of Community Service Obligations (CSOs) to non-government entities. (Corporation Submission on Draft Report, pg 1).

In addition, the Corporation stated that it:

> is not aware of any impediments to making CSOs available to private sector water service providers and has discussed with the Department of Treasury and Finance the opportunity to progress this issue in the near future. The Corporation looks forward to working through any relevant issues with the Department of Treasury and Finance. (Corporation Submission on Draft Report, pg 35).

The CPSU stated that it supported the provision of CSO payments to all licensed service providers provided that:

> private provider who may claim CSO's meet the same standards as the Water Corporation provision of subsidised services and are subjected to the same rules. (CPSU Submission on Draft Report, pg 3).

The GEDC supported this recommendation:

> as long as it's a "level playing ground" for all licensed service providers. (GEDC Submission on Draft Report, pg 3).

The AWA stated that central to the discussion of rural and regional water supply:

was the making of payments by Government for community service obligations for 'uneconomic' water supply schemes. In this regard the AWA considers that:

- the Government needs to clearly confirm that CSO payments to private sector bodies will be available where they take over the provision of these services;
- the Draft Report makes reference to such an approach in Queensland, but the translation of this to WA needs more analysis and discussion;
- it is appropriate that the Treasury develop policy and guidelines on CSO payments and establish a process by which individual proposals to supply remote communities are evaluated;
- this should include provisions for: periodic review of the payments; incentives for efficiency gains and innovations; and the objective of trying to scale down CSO payments and making schemes financially viable over time.

(AWA Submission on Draft Report, pg 5).

Rio Tinto supported the development of a CSO policy but argued:

that competition for the right to provide services that attract CSOs on a scheme by scheme basis may be limited, and that the efficiencies deriving from a competitive process may only be realised if these services are appropriately bundled. (Rio Tinto Submission on Draft Report, pg 13).

Rio Tinto suggested that the:

key matters that will need to be addressed in the development of this policy include:

- Integration with the process for issuing an Operating Licence;
- Method of calculation of CSO payments;
- How to incorporate incentives for private sector participation in delivering services that attract CSO payments;
- Appropriate governance arrangements for oversight of competitive processes, analysis of application and proposals, and calculation of applicable CSO payments;
- The need to ensure that processes are both timely and streamlined; and
- Arrangements for appropriate scrutiny and review.

(Rio Tinto Submission on Draft Report, pp 13-14).

The UDIA stated that it:

believes that the introduction of Community Service Obligation (CSO) payments in the South West to the private sector will assist in the development of competition in the market and will ensure equity, particularly in regional areas (UDIA on Draft Report, pg 2).

The Ord Irrigation Cooperative raised the matter of CSOs and asset ownership.

The discussion over CSO's was a little surprising (particularly the Water Corporation and CPSU comments) as it gave the impression that consideration was given to providing the private sector access to CSO's that the Water Corporation currently receives for schemes it owns and operates. It's difficult to imagine that this would occur without addressing the issue of asset ownership. I'd imagine that transferring the assets and business of a town's water supply would not be as straight forward as the process that was undertaken to transfer the State's irrigation assets to the irrigation co-operatives.

I considered that the review of CSO's related more to whether they could be applied to private industry in situations where a new scheme was being developed or in mining towns where the infrastructure is owned and operated by the mining company. (Ord Irrigation Cooperative Submission on Draft Report, pg 3).

The CCI stated that it:

> considers that the Authority should recommend Terms of Reference for a study into the design of community service obligation payments, potentially conducted by the Department of Treasury and Finance. The Authority should also specifically identify particular policy initiatives for the DTF's consideration. (CCI Submission on Draft Report, pg 7).

The DoW stated that:

> the proposed legislative reform will enable the payment of CSOs to all service providers, including licensed private providers. As part of the policy development for the legislative program, the DoW is evaluating alternative policy approaches, including the Queensland approach suggested in the draft report.
>
> The DoW will work closely with the Department of Treasury and Finance to ensure that the operation of the new CSO regime will seek to encourage the maximum benefits available from the participation of the private sector in the industry, while also seeking maximum value for money from the CSOs themselves. (DoW Submission on Draft Report, pg 14).

The DTF stated that it is:

> supportive of the draft recommendation and finding that the current CSO policy should be changed to allow payment to non-government entities. The introduction of contestable CSO payments would provide opportunity for potential competitors in the water industry to compete with the WC to provide services and infrastructure, particularly in regional areas where it is not commercially beneficial to do so. This would reduce the current barriers to entry that exist for non-government entities in regional areas and could increase efficiency. The WC has argued that there is competition in the procurement of construction, operations and maintenance, energy and chemicals in providing services that attract a CSO payment from Government. While competition does exist in these parts of the process, there is no competition at a whole project level. Allowing competition in all steps of the process has the potential for greater efficiency gains than exist under the current arrangements.
>
> The DoW has indicated that the proposed legislation under its water law reform project will specifically recognise CSO and enable these to be provided to all licensed service providers. However, to affect such a change, the Western Australian Government must change its CSO policy to allow contestable CSO payments across the board for all Government Trading Enterprises and private providers, rather than make changes for the water sector alone. If Government endorsement were granted, the DTF would likely base a new CSO policy, allowing contestable CSO on the Queensland system. (DTF Submission on Draft Report, pp 14-15).

In addition, the DTF stated that:

> The Community and Public Sector Union has argued that in the past private suppliers of water services did not provide adequate services to regional and remote areas. The DTF would ensure that reviews of CSO funding, perhaps on an annual basis would be undertaken, similar to that which occurs in Queensland, to ensure that the outcomes agreed by Government are being achieved and adequate services are being delivered. (DTF Submission on Draft Report, pg 15).

6.3.3 Discussion of submissions

The Authority notes the support in submissions for DTF to develop a policy to allow the payment of CSOs to non-government entities. The Authority also notes the DTF comments that the policy be developed to apply to all areas where Government currently makes CSO payments and not just the water and wastewater services sector.

The CPSU and GEDC noted that it would be necessary to ensure that all potential providers be subject to the same rules and be required to meet the same standards. The

Authority considers that if the policy developed by DTF were to be effective in attracting competitive bids, this would be a necessary requirement.

Rio Tinto argued that going to the market on a scheme-by-scheme basis would be unlikely to attract many bids. Rio Tinto argued that more competition would likely ensue if schemes were bundled. The Authority envisages that DTF would investigate the most appropriate way in which to seek the services it required. This may include bundling where appropriate. However, there may be value in letting a range of small and large contracts to build capability in the industry and potentially foster greater competition for future projects.

The Ord Irrigation Cooperative raised the matter of CSOs and asset ownership. In the case where an alternative service provider wins the right to provide services over an incumbent, there is a need to transfer responsibility for management and/or ownership of existing assets. This would require a due diligence process as well as some form of on-going monitoring. The Authority considers that these requirements would be identified in the policy developed by DTF. The requirements would then be applied to each case when seeking the provision of a particular service (or bundle of services).

On the form of the CSO policy, DTF stated that if Government accepted the recommendation to alter the existing CSO policy, it would base the revised policy on that in operation in Queensland. The Queensland policy has been in place for approximately 10 years. Using this policy as a base would enable the development of the most appropriate policy for ensuring the active participation of the private sector in the provision of services for which CSO payments are required.

7 Alternative Industry Structures

7.1 Terms of Reference

The Terms of Reference required the Authority to consider:

- The costs and benefits of alternative industry structures, including transitional costs that may be incurred in changing to a new structure.

7.2 Findings and Recommendations

The Authority makes the following findings and recommendations.

Findings and Recommendations

13) A comprehensive business case be developed regarding the creation of a utility responsible for the provision of electricity, water and wastewater services in Horizon Power's current area of operation.

14) A comprehensive business case be developed regarding alternative configurations of water and wastewater service provision in the Bunbury and Busselton regions given that a prefeasibility study of costs indicates that there are significantly less costly configurations than the current arrangements.

As part of its investigations, the Authority considered alternative service provision models in regional and remote areas of Western Australia. When considering a possible reconfiguration of operations, it is necessary to undertake a three-step process.

- Step 1 – A prefeasibility study. A prefeasibility study is broad in nature and designed to establish whether there are grounds for further investigation.

- Step 2 – A business case. If the prefeasibility study indicates there to be potential benefits from a reconfiguration, a business case may be warranted. In the case of government owned businesses, it is appropriate that government decides whether or not to prepare a business case. A business case, once finalised, is presented to government for final consideration.

- Step 3 – Implementation. If the business case identifies there to be benefits from a reconfiguration and the recommendation is accepted by government, the proposed changes are implemented.

As part of this inquiry, the Authority oversaw the completion of prefeasibility studies for two possible reconfigurations. These related to:

- the creation of a multi-utility with responsibility for electricity, water and wastewater services in the area currently served by Horizon Power; and

- alternative industry structures for water and wastewater services in the Bunbury and Busselton region.

Horizon Power and Corporation

Horizon Power and the Corporation together engaged a consultant to undertake a prefeasibility study. The study assessed the likely cost savings from establishing a multi-utility to provide electricity, water and wastewater services in remote areas of the State.

The final outcome of the analysis indicated that the restructure considered may not lead to any direct cost savings and in some scenarios may lead to an increase in costs. However, the study was inconclusive regarding the intangible benefits that may exist from having a single entity focused solely on the provision of services in regional and remote areas of the State. The Authority considers these benefits may be significant.

As such, the Authority considers it appropriate that a detailed business case be prepared by Horizon Power, with the assistance of the Corporation, and presented to the Government. The business case should investigate the creation of a utility responsible for the provision of electricity, water and wastewater services in Horizon Power's current area of operation.

Bunbury and Busselton region

The Authority oversaw the completion of a prefeasibility study with regard to alternative industry structures in the Bunbury and Busselton region. The results of this study indicated that a single combined entity would be able to offer the services provided currently by the Bunbury and Busselton Water Boards more cheaply. In addition, the prefeasibility study found that the Corporation would be able to provide these services more cheaply again.

The Authority considers that the Government should recommend the preparation of a business case looking at a possible reconfiguration of operations in the Bunbury and Busselton region.

7.3 Discussion

The reconfigurations between Horizon Power and the Corporation and in the Bunbury and Busselton region are considered in turn.

7.3.1 Horizon Power and Corporation

7.3.1.1 Background

The Authority commissioned ACIL Tasman to investigate economies of scale and scope in the water and wastewater industry.[80] Relevant findings in regard to regional and remote areas included:

- The minimum efficient scale for a water business appears to be in the order of 125,000 connections. The number of connections in regional and remote areas range from approximately 25,000 to 70,000.

[80] ACIL Tasman (2007), *Size and Scope Economies in Water and Wastewater Services.*

- The minimum efficient scale for wastewater appears to be approximately 100,000. The number of connections in regional and remote areas range from approximately 10,000 to 60,000.

- There may be cost savings from the establishment of a multi-utility, i.e. a water/wastewater and electricity utility servicing regional and remote areas.

The findings of ACIL Tasman indicate that regional and remote areas in Western Australia are below the minimum efficient scale for water and wastewater utilities. Table 7.1 shows the numbers of connections the Corporation has in each of the areas.

Table 7.1 Corporation Regional and Remote Connections (2005-06)

	Goldfields & Agricultural	Great Southern	Mid West	North West	South West
Water	40,123	30,103	34,578	26,599	72,838
Wastewater	11,844	16,521	13,437	22,905	61,448

Source: Water Corporation 2005-06 Annual Report

There is little prospect of any of the areas growing significantly in the foreseeable future to reach the minimum efficient scale. Rather, the existence of a minimum efficient scale significantly greater than any one of the areas identified indicates that there may be economies of scale and scope from a single entity having responsibility for the combined management and operation of all of the areas. This may be due to shared management and head office operations across the various areas. This point is consistent with the ACIL Tasman finding that there may be cost savings from the establishment of a multi-utility (a water/wastewater and electricity utility servicing regional and remote areas).

Horizon Power provides electricity services to regional and remote consumers in all of Western Australia except those served by the South West Interconnected System. The ACIL Tasman report flagged the possibility of separating the regional and remote water and wastewater services from the Corporation and creating a multi-utility in Horizon Power's current area of operation. This would create a focused regional and remote water/wastewater and electricity multi-utility.

With respect to such a reconfiguration, ACIL Tasman noted the following:[81]

> A key rationale for reconfiguring the provision of essential services in remote parts of Western Australia is that a utility management team is likely to be focused on areas of potential growth or where the bulk of the market is located. Issues associated with small markets that are distant from head office may be difficult to deal with, time consuming and expensive.
>
> At the same time, it is crucial that remote areas receive adequate attention and resources. A utility with small, remote markets as its 'core business' may be better placed to realise economies of scope by addressing similar problems and needs across many small communities.

ACIL Tasman identified quantitative support for the concept of a multi-utility with economies of scope in the order of 16 per cent to 22 per cent identified in one study.[82] In addition, the report noted the existence of multi-utilities in other areas, such as the Northern Territory and England.

[81] ACIL Tasman (2007), *Size and Scope Economies in Water and Wastewater Services,* p43.

[82] Piacenza, M. and Vannoni, D., *Choosing among alternative cost function specifications: an application to Italian multi-utilities,* Economics Letters 82, 2004, pp415-422

Other examples of multi-utilities also exist. For example, in the Australian Capital Territory a single business owns the electricity and gas networks. In addition, this business is contracted by the local water and wastewater utility to provide its water and wastewater services.

7.3.1.2 Submissions

In the Draft Report, the Authority stated that there may be benefits from the creation of a multi-utility but that further investigation prior to the release of the Final Report was required. In preparing their submissions on the Draft Report, the Corporation and Horizon Power engaged jointly a consultant who undertook a prefeasibility study into the possible creation of a multi-utility.

The multi-utility assessed in the prefeasibility report would be responsible for the provision of electricity, water and wastewater services in areas not connected to the IWSS.

With regard to the outcome of the prefeasibility study, the Corporation stated:

> The analysis concluded a significant net additional cost would result from such a disaggregation of the Corporation and merger with Horizon Power. This negative result was largely driven by the duplication of resources required as a result of splitting the Corporation in to two separate businesses.
>
> For comparison and completeness the Corporation independently analysed the merging of Horizon Power into the Corporation. The Corporation has concluded that in terms of the restructuring options, a merger of the Corporation and Horizon would be significantly more cost effective than forming a regional multi-utility because it would avoid any resource duplication referred to earlier.
>
> The Corporation believes that while the analysis shows the potential for a minor net benefit by merging Horizon Power into the Corporation, factoring in the inherent financial and business risks indicates that it would more likely result in a negative outcome.
>
> The Corporation intends to continue to explore and develop collaborative opportunities with Horizon Power. It is the Corporation's view that developing an alliance between the Corporation and Horizon Power provides an opportunity to realise many of the benefits of a merger without exposing the organisations and their customers to the significant risks associated with a structural change.
>
> The Corporation has established an open and constructive relationship with Horizon Power and both organisations intend to build this relationship further. (Corporation Submission on Draft Report, pp 6-7).

Horizon Power stated that it is:

> of the view that any case for the creation of a regional multi-utility is unlikely to be based on short-term operational costs reductions. Horizon Power sees the primary motives for the creation of a regional multi utility to be qualitative in nature and arising from a regional focus. These benefits are of interest to stakeholders and ought to be considered alongside any quantitative evaluation. Further, the socio-economic benefits associated with a regionally focused multi utility warrant further examination. The existing Horizon Power business model has proved to deliver benefits to stakeholders and the community at large and as such a decentralised approach to delivering water services may be of merit. Horizon Power makes the following suggestions for the ERA's consideration:
>
> 1. Horizon Power and Water Corporation will continue developing an alliance (which predates the ERA Report) aimed at providing essential service delivery to regional remote communities.
>
> 2. Horizon Power and Water Corporation should undertake a comprehensive analysis of a merged regional utility. It is imperative that this be done in a collaborative approach between the ERA, Horizon Power, the Water Corporation and other relevant stakeholders.

> The analysis ought to examine quantitative and qualitative aspects associated with the proposal. (Horizon Power Submission on Draft Report, pp 6-7).

Submissions were also received from other interested parties. These included the Department of Health which stated that it:

> has no objection to the evolution of multi utilities. However, the provision of a water service is unlike any other essential service provided to the community. Water distribution systems are dynamic environments where the substance and nature of the product can change during collection, confinement, distribution and supply. Accordingly, the competency and capacity of monitoring and management structures within a multi utility will have to be able to respond to this form of service system. (Department of Health Submission on Draft Report, pg 2).

The CPSU argued that the Corporation and Horizon Power should pursue discussion amongst themselves regarding:

> a sharing of resources on a contracting basis only. ie Metering, Customer Service, New Servicing and Land Development Applications. There are limited gains and many losses experienced if joining country electricity and water was pursued. (CPSU Submission on Draft Report, pg 2).

Rio Tinto cautioned:

> against making a definitive recommendation regarding the formation of a multi-utility … without a robust consideration of the costs and benefits of doing so and without a subsequent stakeholder consultation regarding potential impacts of such a change, before the release of the Final Report. (Rio Tinto Submission on Draft Report, pg 12).

The GEDC stated that the Authority:

> is strongly urged to consult with the Regional Development Council as part of its investigation process, and prior to making a recommendation in its Final Report. This proposal, if adopted, has ramifications for regional WA. (GEDC Submission on Draft Report, pg 3).

The DTF noted that there may be some benefits from economies of scale that may emerge from the formation of a multi-utility and stated that it:

> concurs with the ERA's conclusion that further analysis is necessary of how a merger would transpire and the financial implications, including a cost benefit analysis, before a determination can be made in the final report. (DTF Submission on Draft Report, pp 12-14).

In addition, the DTF noted that:

> in July 2007, the State Government established a taskforce to investigate and report on "The Delivery of Essential Services to Town Based and Remote Indigenous Communities". This matter is still under consideration and may have a flow on impact on the provision of essential services in regional areas. (DTF Submission on Draft Report, pg 14).

The DoW stated that it:

> encourages further development of the proposal (DoW Submission on Draft Report, pg 14).

The CCI stated that:

> Sufficient information is not available at this stage to enable CCI to reach a firm position on this proposal. We consider that the Authority should undertake an extensive research project before any recommendations are made to create a multi-utility for regional and remote service provision. (CCI Submission on Draft Report, pg 5).

In addition, CCI stated that:

> the real costs of disaggregation must be fully accounted for and that a firm business case must be made for a merger, considering potential hidden costs and factoring-in any 'intangible' benefits, such as improved customer experience. We consider it is also important to adopt a realistic perspective regarding when benefits of any restructure can be expected to accrue.
>
> The financial benefits and risks involved in any course of action have not been sufficiently explored in the Draft Report to enable CCI to take a firm position at this time.
>
> CCI considers there is considerable merit in undertaking a transparent cost-benefit study, fully examining the business case for a restructure. Whilst impartiality and objectivity are of central importance, it is also vital to fully engage the affected businesses and stakeholders in any independently conducted study. (CCI Submission on Draft Report, pg 6).

7.3.1.3 Discussion of submissions

Cost reductions and increases

Opportunities for cost reductions from a reconfiguration relate to:

- more effective use of local staff;
- increased productivity through better coordination;
- reductions in fixed costs through sharing local depots;
- sharing management of billing;
- combining management functions in regional and remote areas; and
- increased specialisation of staff.

In addition to potential cost reductions, a range of intangible benefits are also possible. These relate mainly to opportunities for improvements in customer service with respect to:

- creating a water, wastewater and electricity business focussed solely on regional supply; and
- providing a single point of contact for customers, developers and builders.

Possible additional costs from undertaking a merger would result from:

- one-off project costs associated with implementing the merger; and
- the extent to which water and wastewater functions would be duplicated between the multi-utility and the Corporation.

Duplication may be unavoidable due to the need for both the multi-utility and the Corporation to employ, for example, specialist water planners. This duplication could lead to a net increase in the number of employees in the two organisations and subsequently an increase in overall cost.

Prefeasibility Study

As discussed above, in preparing their submissions' on the Draft Report, the Corporation and Horizon Power engaged jointly a consultant to undertake a prefeasibility study of the costs and benefits from a merger of their operations. The consultant analysed two scenarios. The first related to a full transfer of regional and remote operations (i.e. all operations apart from those in the South West) from the Corporation to Horizon Power. The second investigated a partial transfer of general functions and the use of service level agreements between the two businesses for some specialised functions.

The analysis indicated that there would be a net cost from undertaking the merger under both scenarios, although the cost would be less under the service level agreement option.

Unmatched footprint

The study looked only at the costs (no consideration was given to any future efficiencies) associated with establishing a multi-utility to serve all areas except the South West. This resulted in the transfer of water and wastewater operations to the multi-utility in areas where Horizon Power has no electricity operations.

This 'unmatched footprint' approach had the effect of overstating the likely costs of the reconfiguration relative to that proposed in the Draft Report. This occurred as the total increase in water and wastewater management and planning staff (due to necessary duplication) was greater under the unmatched footprint configuration than the configuration proposed in the Draft Report. In the Draft Report, the Authority proposed that the multi-utility operate only in areas where Horizon Power operates currently. This configuration resulted in a lower level of duplication.

Matched footprint

The Authority requested that further analysis be undertaken by the Corporation and Horizon Power to investigate specifically the 'matched footprint' reconfiguration proposed in the Draft Report. This matched footprint analysis indicated that the costs of establishing the merged entity would be significantly less than those of the unmatched footprint scenario and of an order of magnitude where benefits from intangible factors may outweigh any cost increases.

The outcome of the matched footprint analysis does not provide a compelling case for a reconfiguration of operations. However, nor does the analysis provide a persuasive case to dismiss the possibility that there may be benefits from such a reconfiguration.

Additional considerations

The prefeasibility study undertaken by the consultant and the further analysis undertaken by the Corporation and Horizon Power looked only at costs associated with the merger. No consideration was given to a range of possible benefits. With regard to possible benefits, Horizon Power submitted that:[83]

> a regional multi-utility would offer a number of qualitative benefits that ought to be taken into consideration. These include:
>
> **A Regional Focus**
>
> Drawing from our past experience, we believe our regional customers, residential and commercial alike, have seen the level of electricity services in Regional WA improve

[83] Letter from Horizon Power to the Authority dated 22 April 2008.

following the disaggregation of the Western Power Corporation. This has been achieved through, amongst other things, our decentralised business model and through being able to focus our attention fully on regional service provision (ie without the distraction of a huge metropolitan sector). We have no evidence to suggest that the provision of Water and Wastewater services would differ in this regard.

Single Point of Contact

Creating a single point of contact for residential developers in regional towns, mining operations in the Pilbara, and community leaders in Aboriginal remote communities would greatly enhance the level of service provided to these customers. When combined with our decentralised business model, a regional multi-utility would allow for the creation of regional service centres.

Economies of Scale and Scope

As with many small and regional utilities across the globe Horizon Power's prime strategic challenge is lack of scale. The addition of water and wastewater customer accounts would significantly increase our economies of scope, leading to benefits to our customers as well as the shareholder. Notwithstanding the above Horizon Power continues to successfully pursue prudent cost management, targeted growth and selected alliances to overcome issues of scale.

Regional Employment

A regional Multi-Utility would create regional employment opportunities through the creation of regional service centres along with increasing the number of Essential Service Officers to cater for Aboriginal Remote Communities.

Competition

In its provision of electrical services to regional WA, Horizon Power pursues a model that allows for generation to be provided in Independent Power Producers (IPP) or internally, as the case sees fit. We believe that this model could be replicated with regards to water and wastewater service provision.

A further possible advantage of a regional utility with responsibility for water, wastewater and electricity provision is that it would create another water and wastewater provider able to compete for greenfield developments. The inclusion of these (and other) potential benefits may lead to a conclusion that there are overall benefits from a reconfiguration.

Alternatives to structural reconfigurations

There are alternative ways to achieve some of the benefits noted above without undertaking a full reconfiguration. The two most appropriate ways are for:

- the Corporation and Horizon Power to make a commitment to continue to work together to try and take advantage of possible synergies; or

- all regional and remote water and wastewater operations be put out to tender while at the same time removing all restrictions on Horizon Power, thereby allowing it to compete to provide these services.

Corporation and Horizon Power Work Together

Seeking a commitment from the Corporation and Horizon Power to work together would be a low cost way in which to explore possible synergies. If the two businesses operated in competitive markets, it would be expected that they would explore opportunities for synergies in the general course of their business. However, the businesses are both regulated on a cost recovery basis and have designated scopes and areas of operation. Therefore, there may be little incentive for the businesses to actively pursue these synergies.

In addition, while it is possible that an alliance approach may be successful, it may also prove problematic. For example, the Authority understands that an alliance option regarding jointly training staff in regional areas was attempted but later abandoned. It is conceivable that this joint training may have been more successful if a single business was responsible for ensuring its success.

Tender Operations

There would be minimal upfront costs of putting in place a regime whereby all regional and remote water and wastewater operations are put out to tender. Regional and remote water and wastewater operations generally require CSO payments. As such, adopting the Authority's recommendation regarding CSO payments could lead to a tendering of these operations. However, there would be a need to also remove any restrictions that apply to Horizon Power which may inhibit its ability to act as a water and wastewater service provider and operate outside its current area of operation.

Such an approach would be the most reliable way of determining whether it is truly economically efficient for Horizon Power to undertake this work. However, a tendering approach may not adequately take account of the intangible benefits stemming from a multi-utility.

7.3.1.4 Conclusion

There are potential benefits from the creation of a regionally focussed multi-utility. However, the Authority does not consider there to be sufficient incentive under the current operating arrangements for the Corporation and Horizon Power to actively seek to realise possible synergies if left to work together. Similarly, the Authority has concerns should a tendering approach be adopted that it may not adequately take account of the intangible benefits stemming from a multi-utility.

The Authority considers that the most appropriate way in which to determine whether there are truly benefits from the creation of a multi-utility is to prepare a comprehensive business case. Horizon Power should lead the development of the business case given its focus on regional areas and that this is considered to be the main advantage of the multi-utility.

The development of the business case would likely require the engagement of an independent consultant who would work closely with Horizon Power and the Corporation. Such a process would include consultation with other affected parties as requested in many of the submissions. The investigation would provide clear recommendations on whether or not to undertake a reconfiguration.

On the establishment of a comprehensive business case, Horizon Power stated:

> Horizon Power and Water Corporation should undertake a comprehensive analysis of a merged regional utility. It is imperative that this be done in a collaborative approach between the ERA, Horizon Power, the Water Corporation and other relevant stakeholders. The analysis ought to examine quantitative and qualitative aspects associated with the proposal. (Horizon Power Submission on Draft Report, pp 6-7).

It should be noted that if the recommendation were to create a multi-utility in Horizon Power's current area of operation, this replaces one monopoly provider with another. However, this would be beneficial if the multi-utility was able to deliver the services more efficiently than the current arrangements, taking into account the qualitative matters identified earlier. It would also create an additional water and wastewater service provider to compete in other areas, especially for greenfield developments.

An approach whereby a multi-utility is established would not preclude the DTF from developing its procedures to allow CSO payments to be paid to all licensed service providers. Rather, it would mean that the existing CSO payments would likely be less due to the greater efficiency of the multi-utility. Once the procedures were developed, the multi-utility could be required to compete for the right to continue to provide the services.

7.3.2 Bunbury and Busselton region

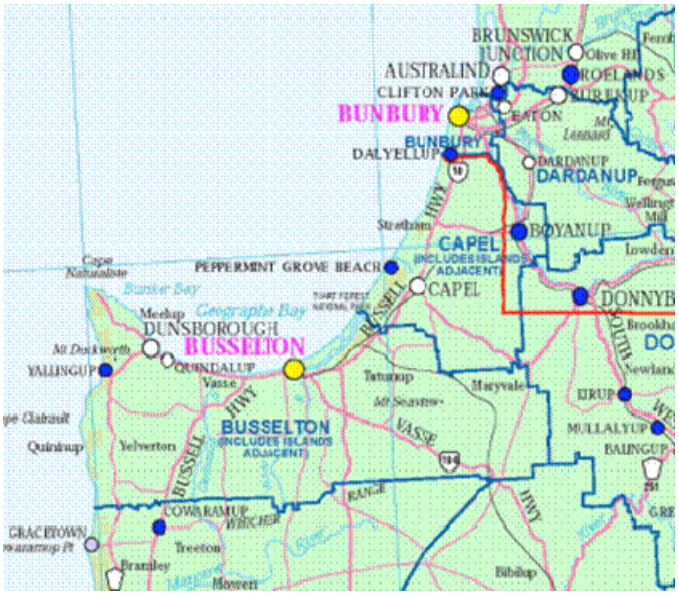
7.3.2.1 Background

There are currently three utilities providing services in the South-West region of Western Australia:

- AQWEST provides water services in Bunbury, except for Dalyellup, Eaton and Australind.
- Busselton Water Board provides water services in the town of Busselton, Port Geographe, Siesta Park and Wonnerup.
- The Corporation provides water supply to all other towns and wastewater services to all towns. The Corporation has a regional administrative office in Bunbury, major operational depots in Mandurah, Bunbury and Busselton and a number of smaller depots in other areas.[84]

Figure 7-1 shows the areas served by these agencies.

Figure 7-1 South-Western Western Australia



[84] It should be noted that some local governments provide wastewater services in other areas of the State. See the existing charges.[84]

Appendices.

The economies of scale and scope analysis undertaken by ACIL Tasman produced the following findings relevant to the water boards in addition to the minimum efficient scale data noted in Section 7.3.1.1:[85]

- There appears to be little benefit from combining water with wastewater operations, although potential synergies may increase with the emergence of wastewater recycling opportunities. However, there appears to be little lost from combined water and wastewater operations.

- There may be cost savings from a reconfiguration of operations in the Bunbury/Busselton area.

The findings of the ACIL Tasman analysis indicate that the size of the regional and remote areas are below the minimum efficient scale for water and wastewater utilities. Table 7.2 shows the relative size, in terms of connection numbers, of the three operations.

Table 7.2 South West Water Connections (2005-06)

	AQWEST	Busselton	Water Corp
Connections	14,739	9,020	72,838

Source: AQWEST, Busselton Water Board and Water Corporation

The Draft Report noted that there may be significant cost savings from a reconfiguration of these operations. However, the Draft also noted that further analysis was required before any definitive conclusions could be made. Following the release of the Draft Report and based on discussions between the Corporation, AQWEST, Busselton Water Board and the Authority, it was decided to undertake a prefeasibility study regarding possible reconfigurations. The Allen Consulting Group (**ACG**) was engaged to oversee this process and produce the prefeasibility report.

The aim of the prefeasibility report was to consider various alternative industry configurations and determine whether there was merit in exploring any of these options further.[86]

7.3.2.2 Prefeasibility Report – Methodology and Findings

The ACG report considered nine possible alternative configurations and calculated the impact on costs for each, in net present value terms.

Table 7.3 describes the nine different entities and provides the approximate cost or saving.

[85] ACIL Tasman (2007), *Size and Scope Economies in Water and Wastewater Services.*

[86] The report is available on the Authority's web site at: www.era.wa.gov.au/2/508/46/inquiry_into_co.pm

Table 7.3 Entities and costs

Entity	Description	Change in cost ($million in net present value terms)
1	AQWEST's current operations combined with the Water Corporation's water operations in Dalyellup and Eaton/Australind	7.0
2	AQWEST's current operations combined with the Water Corporation's wastewater operations in Bunbury	6.1
3	AQWEST's current operations combined with the Water Corporation's wastewater operations in Bunbury and water and wastewater operations in Dalyellup and Eaton/Australind	12.9
4	Busselton Water's current operations combined with the Water Corporation's water operations in Dunsborough/Yallingup	4.4
5	Busselton Water's current operations combined with the Water Corporation's wastewater operations in Busselton	6.9
6	Busselton Water's current operations combined with the Water Corporation's wastewater operations in Busselton and water and wastewater operations in Dunsborough/Yallingup	10.1
7	**AQWEST's and Busselton Water's current operations merged into a single entity**	**- 8.3**
8	AQWEST's, Busselton Water's and the Water Corporation's current operations in or nearby Bunbury and Busselton merged into a single entity[87]	8.6
9	**AQWEST's and Busselton Water's current operations merged into the Water Corporation**	**- 36.7**

The analysis indicated that of the nine entities considered, only two resulted in cost savings:

- Entity 7: AQWEST's and Busselton Water Board's operations are merged into a single entity.
- Entity 9: AQWEST's and Busselton Water Board's operations are merged into the Corporation.

Potential cost savings - Entity 7

ACG concluded that:[88]

> Entity 7, which would see Aqwest and Busselton Water's current water operations merged into a single entity, was estimated to potentially generate:
>
> – annual ongoing cost efficiencies of around $595,200 (2007-08 base year), equivalent to around 5.6 per cent of the two organisations' combined operating budgets (of around $10.7 million in 2007-08); or

[87] This includes the Bunbury, Dalyellup, Eaton/ Australind, Busselton, Dunsborough/Yallingup, Capel, Boyanup and Peppermint Grove water schemes and the Bunbury/Dalyellup, Eaton/Australind, Busselton, Dunsborough and Capel wastewater schemes.

[88] The Allen Consulting Group, *Water Industry Structure Study: Analysis of Alternative Reconfiguration Options in the South-West of Western Australia,* May 2008, pg v.

> – total cost efficiencies summing to around $8.3 million in present value terms over 20 years including transition costs.

There are approximately 25,000 customers served by AQWEST and the Busselton Water Board. If the full amount of the cost reduction was passed through to customers via a reduction in water tariffs, the annual ongoing cost efficiencies of approximately $600,000 would represent an annual saving of approximately $24 per customer.

In terms of a typical customer consuming 300kL per year, this would reduce their annual bill from approximately $270 to $246, a saving of nearly 9 per cent.[89]

Potential cost savings – Entity 9

ACG concluded that:

> Entity 9, where Aqwest and Busselton Water's current water operations would be merged into the Water Corporation, was estimated to potentially generate:
>
> – annual ongoing cost efficiencies of around $2.6 million (2007-08 base year), equivalent to 7.1 per cent of the three organisations' combined operating budgets (of around $36.8 million in 2007-08); or
>
> – total cost efficiencies summing to around $36.7 million in present value terms over 20 years including transition costs.

Merging AQWEST's and Busselton Water Board's operations into the Corporation would result in annual ongoing cost efficiencies of approximately $2.6 million. This would represent an annual saving of approximately $100 per customer if all of this cost reduction was passed through to customers in Bunbury and Busselton. In terms of a typical customer consuming 300kL per year, this would reduce their annual bill from approximately $270 to $170, a saving of around 37 per cent.

However, this cost reduction is due to economies and scale and scope within the Corporation. As such, the extent to which all Corporation customers should benefit from the cost reduction is a matter for debate and depends on the degree to which prices in the Bunbury and Busselton region reflect actual costs.

Other factors

It is important to consider the methodology adopted and assumptions made when considering these outcomes.

The approach taken considered two matters:

- Transitional costs incurred in establishing the entity. For example, costs associated with integrating IT systems.
- Ongoing costs required to manage and operate the entity. For example, costs related to on-going staffing levels.

Both transitional and ongoing costs were estimated and a net present value calculated. Entities which showed an overall cost decrease were mainly the result of reduced ongoing staffing levels due to a reduction in the duplication of functions (for example, in eliminating duplication in management structures).

[89] Using 2007-08 prices and assuming an annual consumption of 300kL, an AQWEST customer would receive an annual bill of $269.50 and a Busselton Water Board customer would receive an annual bill of $273.50.

Entities which showed cost increases were typically due to increases in staffing levels in the created entity that more than offset the reduction in the Corporation's staffing level. This was due to economies of scale within the Corporation.

In undertaking the analysis, no consideration was given to savings that may be possible from altered methods of operation (for example, network reconfigurations). Such an approach has the effect of understating any potential cost savings. However, with respect to the cases that showed cost increases, the magnitude of the savings would have to be considerable to alter the outcomes of the study. In regard to Entities 7 and 9 which showed potential cost saving, this assumption acts to understate the estimated savings.

It was also assumed that customers would not experience any change in the service provided. For example, it was assumed that designated shopfronts, where they exist currently, would be maintained. Once again, this assumption understates possible cost savings.

In addition, intangible benefits that may be lost due to the reconfigurations were ignored. For example, both AQWEST and the Busselton Water Board stated that there were significant intangible benefits from having a local service provider. This assumption understates the cost of adopting an alternative arrangement.

7.3.2.3 Conclusion

The prefeasibility study indicated that a single entity may be able to provide the services currently provided by the Bunbury and Busselton Water Boards more cheaply. In addition, it was found that the Corporation may be able to provide these services more cheaply again.

The Authority is conscious of the conclusions of the Steering Committee which consisted of management staff from the Corporation, AQWEST and the Busselton Water Board. The Steering Committee concluded the following:[90]

> The Steering Committee has balanced the relatively small potential cost savings identified in the Report with the community and non-quantifiable benefits of local ownership. For either of the two favoured merger options consideration needs to be given to:
>
> - the loss of local focus that would occur. Even simply merging the two water boards would dilute the community focus of each utility. There is a strong affinity for both Aqwest and Busselton Water with their local customers. Ownership and identity are important considerations.
> - the likely increase in the cost to customers if the Water Corporation takes over the water boards and the Statewide Uniform Policy is applied to Bunbury and Busselton. For average residential consumption of 300kL, this would result in an annual increase of $96 per annum for Aqwest customers and $92 per annum for Busselton Water customers.
> - Aqwest and the Busselton Water Boards are seen by their community as being owned by them. Neither Busselton Water nor Aqwest has received any funding from the State Government since their inception in 1906. The respective scheme assets have been funded exclusively through revenue from the operation of each scheme. It would therefore need to be well demonstrated that any merger would be to the benefit of customers and the local community.
> - The Joint Utilities Group has taken an active role in cooperatively exploring and implementing the efficient delivery of services in the South West part of the State.

[90] Letter from the Steering Committee accompanying the ACG Report.

> This process can deliver similar capital efficiency benefits to amalgamation of the utilities.
>
> The Steering Committee has concluded that the Report has not identified sufficient savings to justify any change in the current industry structure. The Committee asks the ERA to note that such investigations consume considerable resources and are a distraction from providing services to customers, and recommends that no further work be undertaken investigating other options.
>
> Additionally, combining Busselton Water and Aqwest, or absorbing Busselton Water and Aqwest into the Water Corporation would potentially reduce competition in the West Australian water industry by creating a monopoly. This would appear to be contrary to the Terms of Reference for the Inquiry that seek reforms that enhance competition.

The Authority acknowledges the arguments presented regarding the non-quantifiable elements of local ownership and the disruptive nature of investigations of this nature. In addition, the Authority notes the argument related to the uniform tariff policy.

However, the Authority is also conscious of the potential savings available to consumers (approximately $24 per customer per year under Entity 7 and approximately $100 per customer per year under Entity 9 if all cost savings are passed through to customers).

In addition, the Authority notes the issue with the uniform tariff policy that customers in low cost regional and remote areas are charged the same as the metropolitan area. The Authority considers that this matter could be addressed through the establishment of separate Bunbury and Busselton tariffs. These tariffs would represent the lower cost associated with providing water services in Bunbury and Busselton relative to the metropolitan area (subject to appropriate head office cost allocation to address matters related to cost reductions due to economies of scale and scope achieved by the Corporation).

The Steering Committee also argued that combining AQWEST and the Busselton Water Board, or merging these operations into the Corporation, would potentially reduce competition. As discussed in Section 2.2, competition is not an end in itself and there are circumstances where competition is not beneficial to consumers. Indeed monopoly organisations may be able to provide services at lower cost than multiple providers in circumstances where economies and scale and/or scope exist. However, there is a trade-off between the productive efficiency that can be achieved by a monopoly and the allocative and dynamic efficiencies that result from competition between service providers.

The Authority considers that, in having regard for the long-term interests of consumers, there may be some justification in undertaking further investigations to more clearly assess whether technical, allocative and dynamic efficiencies can be identified that would justify a restructure of water and wastewater services in the Bunbury and Busselton region.

As part of the business case, the views of the community could be surveyed to establish the value placed on local ownership. The business case could also consider in detail the remaining intangible factors not taken into account in the prefeasibility study. Furthermore, the business case could investigate matters related to the ownership and transfer of assets.

8 Other Matters

8.1 Introduction

In the Authority's analysis, a range of matters not mentioned specifically in the Terms of Reference but considered necessary to investigate, were identified. These related to:

- retail contestability; and
- retail pricing, specifically scarcity pricing.

8.2 Findings and Recommendations

The Authority makes the following findings and recommendations.

Findings and Recommendations

15) The most cost-effective approach to allow for retail contestability be developed. This is necessary given that retail competition is required to support third party access and that any potential service provider can seek access to a natural monopoly's infrastructure.

16) The introduction of a fully contestable retail market is premature at this time. Applications from potential residential retail service providers should be considered on a case-by-case basis and the terms and conditions subject to approval. Terms and conditions associated with the provision of retail services to non-residential customers should be the subject of commercial negotiations.

17) The introduction of a pricing regime that allows price to vary based on supply has merit in sending price signals. These price signals indicate to consumers the cost of their consumption and provide producers with information regarding potential investment opportunities. This matter will be considered in more detail as part of the Authority's upcoming inquiry on tariffs for the Corporation, Bunbury Water Board and Busselton Water Board.

Retail Contestability

Retail contestability gives customers the ability to choose their service provider from competing businesses. The benefits of competition in the provision of goods and services is increased product choice and alternative price and quality characteristics. An effectively operating market generally reveals an understanding of consumers' preferences and willingness to pay for goods and services of differing price and quality.

In the case of the water and wastewater sector, indications are that contestability is most likely in the provision of wastewater services. For example, Services Sydney intended to:

- compete for retail customers in the provision of wastewater services;
- transport their customers wastewater using Sydney Water's network;
- provide its own treatment services; and then
- sell this recycled water on a fit-for-purpose basis.

The Services Sydney case also illustrates the linkage between retail competition and third party access (and opportunities of the use of recycled water). The introduction of a third party access regime requires that some form of retail competition exist to allow the access seeker to sell its services to customers. As such, the question becomes not one of whether or not to introduce contestability but how to determine the most cost-effective way to allow for contestability while ensuring customers' interests are protected.

The Authority considers that with respect to residential customers, applications to provide retail services should be considered on a case-by-case basis. Costs associated with allowing for contestability should be borne by the proponent but limited to developing a contestability regime sufficient for its purposes. The regime should include retailer-of-last-resort provisions to ensure customers not be left without a service provider should the retailer fail.

Non-residential customer contracts should be based on commercial negotiations.

These arrangements could be reviewed in, say, five years.

Scarcity Pricing

The introduction of scarcity pricing would also allow for increased price signals. These price signals would inform consumers about the true cost of the water they are consuming and provide information to potential suppliers. The influence of price signals on consumers and suppliers and subsequently the supply/demand balance indicate that the IPE should be involved in setting prices. The Authority will consider the matter of scarcity pricing further in its upcoming inquiry into water and wastewater tariffs for the Corporation, the AQWEST and the Bunbury Water Board.

8.3 Contestability

8.3.1 Residential Customers

In the Draft Report, the Authority stated that it was premature to introduce a fully competitive retail market for small customers. The Authority reached this conclusion for a number of reasons:

- The requirement for a significant investment in establishing a market including developing:
  - market rules;
  - a mechanism by which customers could switch retailers;
  - an approach to dealing with the failure of a retailer; and
  - other administrative matters;

- The lack of a detailed benefit-cost analysis.
- Uncertainty surrounding the number of potential market entrants.
- Unknown demand for a contestable market.

However, the Authority stated that there may be value in allowing a degree of contestability at this time for the provision of wastewater services to encourage the use of recycled water. The Authority stated that the appropriateness of such contestability could be considered on a case-by-case basis as access terms and conditions are agreed upon.

The Authority suggested that a review could be conducted in, say, five years to evaluate the effectiveness of the regime. The review could be informed by progress in the electricity market where the Office of Energy is currently undertaken an assessment of the introduction of a fully contestable market.

8.3.1.1 Submissions

The Corporation stated that it supported the draft recommendation and finding that:

> retail contestability is premature for small customers at this time. (Corporation Submission on Draft Report, pg 1).

However, the Corporation also stated, with reference to large customers although the Authority considers the comments applicable to all customers, that:

> retail contestability would effectively occur with the introduction of a well developed third party access regime. Water and wastewater operating licences are non-exclusive in the metropolitan area, and therefore alternative service providers are currently able to apply for a licence to supply certain areas or specific customers. In addition, third parties can access independent water resources if required and receive water allocation licences through the Department of Water. Therefore the only impediment to retail contestability is the ability to access monopoly infrastructure, which would be overcome with the establishment of a third party access regime. (Corporation Submission on Draft Report, pg 28).

WACOSS stated that it:

> strongly supports the Authority's finding that the retail water sector for small consumers is not currently appropriate for Full Retail Contestability (FRC) at this time. Some concerns remain, however, regarding the Authority's recommendation that given the nature of third-party access and water recycling, greater contestability should be considered on a "case by case" basis for small consumers. (WACOSS Submission on Draft Report, pg 8).

WACOSS recommended that:

> the Authority clarify its apparent support … for retail contestability for small water consumers on a case-by-case basis within the body of its final report. This clarification should contain discussion regarding the costs associated with the development of a contestability scheme for small consumers that would protect their access to water as an essential service. (WACOSS Submission on Draft Report, pg 9).

The DTF stated that it:

> is supportive of the ERA's draft recommendation, wherein retail contestability is introduced only for large customers at this time. However, the synergies between the retail functions of the water sector and other private firms indicate that residential consumers may benefit from contestability at some time in the future. As such, the DTF would suggest that full retail contestability is not precluded from occurring following the introduction of contestability for large consumers. (DTF Submission on Draft Report, pg 11).

8.3.1.2 Discussion

Retail competition is necessary to support a third party access regime. As noted in the discussion regarding third party access (see Chapter 4), any potential service provider can seek access to a natural monopoly's infrastructure. On this matter, the Corporation stated that 'the only impediment to retail contestability is the ability to access monopoly infrastructure, which would be overcome with the establishment of a third party access regime'.

As such, the question becomes not one of whether or not to introduce contestability but how to determine the most cost-effective way to allow for contestability while ensuring customers are not disadvantaged.

The costs and difficulties associated with developing a fully contestable market for all customers suggest that it is unlikely to be worth it in the near term given:

- uncertainties regarding the number of potential entrants; and
- unknown demand for a contestable market.

However, there is a need for some mechanism to allow customers to switch to an alternative service provider if they consider there to be benefits from doing so. The Authority considers that the most appropriate way in which to allow for contestability for residential customers is to consider applications from potential retail service providers on a case-by-case basis.

The Authority envisages that under such an approach, the proponent would bear the costs associated with introducing contestability. Costs would be limited to developing a contestability regime sufficient for the proponent's purposes.

For example, if an alternative wastewater provider wished to provide services for a particular development, it would bear only the costs associated with developing a regime sufficient for its purposes and for that particular development only. The Authority considers that any contestability regime would need to include retailer-of-last-resort provisions. Retailer-of-last-resort provisions are necessary to ensure customers would not be left without a service provider should their retailer fail.

Once a contestability regime was established, customers would be able to then decide whether or not to receive their services from the alternative supplier. Customers would change service providers if they perceived there to benefits from doing so. If after time it became evident that there was strong demand for contestability regimes, the introduction of a more widely spread regime could be considered.

The approach proposed by the Authority does not represent a change from the existing arrangements. Rather, it simply clarifies the coverage of a contestability regime should one need to be developed.

8.3.2 Non-Residential Customers

In the Draft Report, the Authority stated that non-residential customers should be allowed to select an alternative supplier should one be able to offer a preferable product to that of the incumbent provider. As with residential customers, the Authority considered that the most likely services to be provided would relate to wastewater services and opportunities for the use of recycled water.

As for residential customers, the Authority suggested that in the first instance, the costs associated with introducing contestability be met by the proponent. This was suggested as the Authority considered it to be inappropriate for all customers to pay for the establishment of a contestable market given the uncertainty surrounding potential market entrants and demand from customers.

It was envisaged that the supply arrangements would be based on commercial negotiations and undertaken via bilateral contracts. This approach would avoid the need for the development of a formal contestable market with associated market rules.

The Authority also stated that should sufficient interest for a contestable market exist, the completion of a review in, say 5 years, could reconsider this approach.

In addition, the Authority stated that it would give further consideration between its Draft and Final Report to the threshold (size) at which contestability should be allowed. Table 8.1 shows annual non-residential water use per meter.

Table 8.1 Non residential annual water usage

Annual Water Use (kL)	Number of Meters	Total Consumption (ML)	Total Consumption %
< 5,000	16,809	8,847	28
5,001 – 10,000	390	2,704	9
10,001 – 20,000	171	2,383	8
20,001 – 30,000	59	1,448	5
30,001 – 50,000	27	1,026	3
> 50,000	68	14,608	47

Source: Water Corporation

8.3.2.1 Submissions

The Corporation stated that:

> retail contestability should be introduced for large customers. (Corporation Submission on Draft Report, pg 1).

The Department of Agriculture and Food stated that it:

> supports retail contestability particularly for access to recycled water. There is a risk associated with a single large entity controlling access to water (from any source). DAFWA considers that it is important for access to recycled water be made available for a range of users. (Department of Agriculture and Food Submission on Draft Report, pg 3).

The CPSU argued that it did not support retail contestability as there are insufficient large customers to warrant contestability.[91]

The CCI stated that it is premature to introduce contestability for residential customers but that it supported the recommendation to allow contestability for non-residential customers:

> because water providers may wish to sell their water direct to customers through bilateral trading mechanisms. This could be viable where non-potable or treated wastewater can be traded for use in industrial processes. Providers may also see commercial opportunity in directly retailing potable water to industrial or large commercial customers. (CCI Submission on Draft Report, pg 4).

[91] Community and Public Sector Union Submission on Draft Report, pg 2.

8.3.2.2 Discussion

As noted previously, the question is not whether to introduce retail contestability but how to do so most cost-effectively while ensuring customers are protected.

The Authority retains its view that it is appropriate in the first instance for costs associated with introducing contestability for non-residential customers to be met by the proponent. This may well take the form of bilateral contracts based on commercial negotiations. This would avoid the need for the development of a formal contestability regime to be approved by the Authority as for residential customers.

It would be inappropriate for all consumers to pay for the establishment of a formal contestable market regime given the uncertainty surrounding potential market entrants and demand for a contestable market. However, should sufficient interest for a contestable market exist, the completion of a review in, say 5 years, could reconsider the proposed approach.

The CPSU argued that there are insufficient non-residential customers to warrant the introduction of a contestability regime. However, as noted previously, as all natural monopoly infrastructure can be the subject of an access regime, the question is not whether or not to introduce contestability but how to determine the most cost-effective way in which to allow for contestability. Similarly, on the matter of an appropriate threshold, there is no need to set a threshold to which contestability would apply given that all customers are in effect contestable.

8.4 Scarcity Pricing

The introduction of a fully contestable retail market was judged to be premature at this time. However, it is possible to develop an alternative way of providing both consumers and investors with the price signals necessary to create a more efficiently operating market. Consider the operation of a contestable market.

Price in a contestable market

In the operation of a contestable market, the price of a good consists of three elements:

- The cost of production.
- The cost of depletion (i.e. a cost associated with consuming a good now such that it cannot be consumed at a later date).
- The cost of externalities.

If the price of water were determined in a contestable market, the price would rise in times of shortage. This would occur as water was being consumed and would therefore not be available for later use. In a fully functioning market, the rise in price would be high enough to avoid the need for non-price restrictions. Conversely, price would fall when water was plentiful.

A market-determined price has two effects.

- First, consumers are exposed to prices which signal the true cost of their consumption, including any opportunity cost imposed on the system.

- Second, water providers receive information about whether consumers are willing to pay more for water and as such receive guidance on whether to invest in additional (more expensive) sources.[92]

Water pricing

In the absence of a contestable market, there have been significant advances in the way in which water prices have been determined. Historically, water prices were either charged on a fixed annual basis or determined under a 'rates-based' approach. The price charged bore no relationship to the volume of water used. In addition, the revenue raised typically bore little resemblance to the cost of providing the service.

The introduction of water meters allowed customers to be charged on the basis of usage. Prices were also set to reflect more accurately the cost of service provision. However, prices were typically set with little reference to the effect of consumption on future water supplies and therefore did not take into account the depletion of supplies.

To address this shortcoming, regulators including the Authority, the ESC and IPART have adopted Long Run Marginal Cost (**LRMC**) pricing for usage charges.[93] Under a LRMC pricing approach, water prices are calculated with reference to the costs likely to be incurred in developing additional water sources due to a change in demand.[94] The purpose of this is to, at least some extent, replicate the outcomes of a market where price would equilibrate at a point that reflects not only the cost of production but also the value of current consumption, including the impact of this consumption on future supply.

Scarcity Pricing - Theory

A possible improvement on LRMC pricing is 'scarcity-based' pricing, or a hybrid that has a scarcity-based component. Under scarcity-based pricing, prices are set with specific reference to not only the direct cost of production but also actual storage levels (and potentially externalities). This incorporates into the price the opportunity cost of current consumption.

Pricing on this basis would tend to lie below LRMC for much of the time. However, it would rise above LRMC at times when the system is stressed, especially as the need to trigger a new infrastructure investment approached.

Prices would rise gradually as storage levels fell. The rise in price would reduce demand. It would also contribute to a financial reserve that reflects the change in the expected cost of future supply augmentation – providing scope for avoiding the need to implement water restrictions. However, following inflows to dams, prices would fall to reflect the falling opportunity cost of consumption and the falling expected cost of future supply augmentation.

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[92] The incentive of a water utility to invest in additional sources is unrelated to price. Rather, a regulated business has an incentive to invest in capital projects as long as they are considered prudent and efficient by the regulator/government as it will then receive a return on and of the investment. The decision to invest and the regulator/government's decision to approve the investment, occurs without any detailed knowledge of consumers willingness to pay.

[93] It should be noted that the reference to LRMC pricing in this context is different to the theoretical concept of LRMC. Theoretical LRMC refers to a situation where all factors of production are variable in the production of a given quantity. LRMC pricing in the sense that regulators have adopted is actually an incremental cost associated with the introduction of additional sources of supply.

[94] There are two commonly adopted approaches to the calculation of LRMC, the perturbation and average incremental cost. While the methodologies differ, both attempt to reflect the cost of bringing online additional sources.

On this point, it is relevant to note a recent recommendation contained in the National Water Commission assessment of the implementation of the National Water Initiative. Recommendation 3.2.4 called for 'pricing regulation that encourages more flexible or market-driven pricing approaches to emerge in response to water scarcity'.[95]

Similarly, the recent discussion paper from the Productivity Commission on Urban Water Reform called for a greater role for prices to signal water scarcity.[96]

Scarcity Pricing - Practice

In the Draft Report, the Authority identified that scarcity-based pricing would not need to apply to all customers. Rather, the water utility (in this instance the Corporation) could offer customers a range of possible price plans. The range of plans could include:

- a scarcity-based approach where customers could consume as much as they wished as long as they were willing to pay the scarcity-based price;
- a 'locked-in' price for all consumption determined independently of storage levels; and
- the purchase of a given entitlement, say 250 kL per year, at a relatively reduced price but with significant penalties should consumption exceed this amount.

In the Draft Report, the Authority concluded that there was merit in exploring the introduction of scarcity based pricing to improve price signals for customers regarding the true cost of their consumption and producers regarding potential investment opportunities.

Price and an Independent Procurement Entity

Price has the ability to influence both supply and demand. Therefore, it is necessary that price be one of the options managed by the IPE in its portfolio of supply and demand options. The IPE would specify prices taking into account any Government social policies regarding capacity for customer to pay.

8.4.1 Submissions

The Corporation did not support the introduction of scarcity based pricing and stated that:

> It is unclear from the Draft Report how scarcity pricing will encourage competition in the industry.
>
> Key concerns regarding scarcity pricing in the water industry include:
>
> • Customer protection – the large increases in price that could occur from year to year have the potential to affect essential water use for health and hygiene. Any pricing regime should ensure that basic water use is not placed at risk;
>
> • Uncertainty about customer response – there is considerable uncertainty about the degree that customers will respond to price signals in the short term. Restrictions are a more reliable manner to deal with short-term supply shortages;
>
> • Matching pricing signals to investment decisions – fluctuations in the price of water may lead to uncertainty about long term water costs and therefore may not promote efficient investment in long term water saving initiatives such as water efficient gardens and whitegoods; and

[95] National Water Commission, *National Water Initiative – First Biennial Assessment of Progress in Implementation,* August 2007.

[96] Productivity Commission, *Towards Urban Water Reform: A Discussion Paper,* March 2008.

> • In addition to the objective of sending pricing signals, pricing must also take into account other objectives including the ease of administration and customer preferences for price stability.
>
> Due to the complexity of the issues, the Corporation recommends that the issue of scarcity pricing is better addressed as part of a pricing inquiry, rather than as part of the current inquiry into competition. (Corporation Submission on Draft Report, pp 29).

Rio Tinto stressed:

> the need for extensive stakeholder consultation and further consideration of some key issues regarding the introduction of scarcity based pricing. Further studies should be undertaken on this issue to consider: effectiveness of price signals for a range of users (ie. price elasticity of demand); financial impacts on users; a clear distinction between proposals for domestic consumers and proposals for commercial consumers; scarcity based pricing within a framework that offers options to customers; market limitations on where scarcity based pricing can be applied; and broader impacts on economic and regional development. (Rio Tinto Submission on Draft Report, pg 11).

The CPSU stated that scarcity pricing was not supported as:

> The community needs a structured and sustainable water market that is predictable to foster business growth and activity. Scarcity should be governed by sustainability principles together with water restrictions and regulation as a fairer means of sharing scarcity burdens within the community.
>
> Enforced economic scarcity by freeing up pricing to address short term circumstances during times of drought and plenty is not a good way to grow community wealth, it does not reinforce and promote long-term water efficiency objectives and is not an efficient use of our most precious natural resource. Given the drying climate problems, continued WA Govt regulation and input into the orderly provision of WA Water Supplies is providing better long-term outcomes for the continued growth of the WA Community in preference to market mechanisms. (CPSU Submission on Draft Report, pg 2).

WACOSS stated that it:

> acknowledges that there is the potential for a system of scarcity-based water pricing to provide information to potential investors in future bulk water sources. There remains significant concerns, however, regarding the potential equity issues arising from such pricing arrangements for some residential consumers. Additionally, WACOSS also suggests that scarcity based pricing, if incorporated into current models of billing, would likely have limited effect in delivering price signals to consumers and subsequent reductions in demand during times of scarcity. (WACOSS Submission on Draft Report, pg 9).

WACOSS provided a detailed discussion of its concerns regarding equity and efficacy and recommended:

> That any future investigation regarding the possibility of scarcity-based water pricing for residential consumers include an in-depth analysis of associated social impacts, including issues of social equity for different household types. This should include an audit of the number and types of households currently consuming water in each tariff block. This demographic information is vital to understanding the real social impacts of tariff reform. (WACOSS Submission on Draft Report, pg 11).

In addition, WACOSS provided a detailed discussion of other residential water pricing matters including pricing structures, tariff blocks and 'social tariffs'. WACOSS recommended that:

> the Authority carry-out further investigation regarding the capacity of tariff regimes to deliver equitable outcomes and guarantee residential access to affordable, non-discretionary uses of water.

> That the Authority engage in research to analyse the real extent to which the Authority's proposed tariff structure will act as an effective price signal to consumers, capable of affecting their consumption. (WACOSS Submission on Draft Report, pg 14).

The GEDC stated that it did not support scarcity based pricing as it

> will unduly disadvantage those on low incomes; and is likely to have a greater impact on non-urban centres.
>
> Differences between rural and urban water markets need to be acknowledged and factored-in when water policies are formulated. Scarcity based water pricing seems to imply inadequate long term planning for the provision of adequate water supplies. Consumers, in the main, seem prepared to comply with water conservation measures and restrictions when educated about the need to do so. Businesses need predictability in pricing structures to enable them to plan. Scarcity based pricing does not provide this. (GEDC Submission on Draft Report, pp 2-3).

The DTF stated that:

> The introduction of scarcity pricing would encourage consumers to reduce consumption in periods of drought while simultaneously encouraging private investment in bulk water supply sources. The present approach to achieving reduced consumption is the imposition of water use restrictions on consumers. However, scarcity pricing is considered to be a more efficient approach to allocating water during periods of reduced inflow than can be achieved through non-price means. (DTF Submission on Draft Report, pg 12).

In addition, the DTF identified a range of practical problems including the:

> frequency of meter reading would need to be increased in order to accurately reflect the temporal availability of water. Though this could be achieved through the adoption of remote reading technology, it may not be economically viable to implement for all customers at this time. A phased roll-out, similar to the introduction of retail contestability may be practicable. As such, further consideration is required to determine whether scarcity pricing is practical to implement for all consumers at this time. (DTF Submission on Draft Report, pg 12).

On the possibility of offering consumers a choice of a range of plans, DTF stated that:

> There is definite appeal to the proposal to offer consumers various consumption plans, as outlined in the draft report. Such plans would allow consumers to signal whether they are willing to accept a fluctuating price based on the present scarcity price of water, or have a preference for avoiding future price fluctuations by setting a predetermined price and/or volume on a per-annum basis. However, the DTF believes that decision on this matter is best left to the commercial interests of retail entities. (DTF Submission on Draft Report, pg 12).

The DoW stated that:

> demand for internal domestic potable water is generally price inelastic. Subsequently, it is uncertain whether scarcity pricing would adequately replace the need for long run marginal cost pricing and well-timed augmentation of sources. However the potential role of scarcity pricing in addressing short term fluctuations could be examined in further detail.
>
> In further considering the appropriateness of scarcity pricing, the Authority is requested to ensure that any proposal does not lead to the earning of monopoly rents, thereby giving service providers an incentive to avoid investment in augmentation. (DoW Submission on Draft Report, pg 13).

The CCI stated that it supported further research into scarcity based pricing.

> We believe that in order to attract and facilitate private sector involvement in the water market, water pricing mechanisms should be developed so that the price of water reflects

> its scarcity value and actual cost. Price signals would then operate to allocate water to its most efficient uses.
>
> Transparent pricing and cost analysis for the entire water supply chain is also vital, with any cash payments or subsidies between Water Corporations' divisions made apparent, otherwise potential market entrants will find it difficult to determine business viability. Water transportation costs would be an example of critical information that should be made available to prospective entrants. (CCI Submission on Draft Report, pp 4-5).

WSAA submitted that it:

> WSAA notes the ERA's cautious recommendation to explore scarcity pricing for water. The ERA's wish to explore the use of scarcity pricing is understandable (and WSAA supports further research in this area). Nevertheless, WSAA feels compelled to make a number of observations regarding this topic.
>
> First and foremost, WSAA agrees with the ERA's approach of exploring the topic. The customers' demand for water is estimated to be inelastic (particularly compared to the services of other network industries such as electricity). Just as importantly, the existing estimates of the demand elasticity for water are either dated or based on stated (rather than revealed) preferences. With most Australian cities facing significant real price increases over the coming years, WSAA believes that this is an opportune time to evaluate the price sensitivity (both in the short and medium terms) of the customers' demand for water. Accordingly, WSAA suggests that such research be undertaken.
>
> The issue of price responsiveness is equally valid on the supply side. Scarcity pricing in the electricity market was introduced at a time when there was spare capacity such that additional supply could be brought on and off as the market required. In most Australian cities this condition does not currently apply. Accordingly, short term price supply responsiveness is non-existent and additional capacity can take years before it can be brought to the market. (WSAA Submission on Further Consultation Report, pg 4).

8.4.2 Discussion

The Corporation raised the matter of the relevance of scarcity pricing to competition. The Authority considers that scarcity pricing may be an effective way of improving price signals for customers regarding the true cost of their consumption and suppliers regarding customers' willing to pay for additional sources. This information may assist alternative producers in developing alternative sources of supply to compete with existing sources.

The Authority notes the calls for further research and consultation into the possible introduction of scarcity based pricing prior to any final decision being made. The Authority expects to be undertaking an inquiry into the Corporation's, AQWEST's and Busselton Water Board's tariffs during the second half of 2008 and early 2009 and considers this may be the appropriate forum in which to investigate further the possible introduction of scarcity pricing. As such, the Authority reserves its opinion on the introduction of scarcity pricing at this time.

Summary of arguments for and against scarcity pricing

One of the arguments for the use of scarcity pricing is that it is a more efficient and equitable way of dealing with shortages than the use of water restrictions which limit outdoor usage. It is argued that as water restrictions do not differentiate between the value individual consumers place on water usage, some consumers are more adversely affected than others.

For example, a household with little indoor usage but which places a high value on the maintenance of their garden is disproportionately affected relative to a household with no

garden but with high levels of indoor usage. The imposition of outdoor restrictions in such an instance leads to an inefficient allocation of resources and is arguably inequitable.

The main argument against scarcity pricing is that it exposes customers to price variations and may disadvantage low income customers if they were exposed to a high price during times of shortage. It is worth noting that while prices may rise during times of shortage, they would also fall at other times.

A further argument relates to practical difficulties associated with more frequent alterations in prices given the current stock of accumulation meters. The introduction of scarcity pricing may in theory lead to prices being altered more than once a year. However, given the nature of the climate and rainfall patterns in the South West it is likely that scarcity pricing would not see frequent price changes.

For example, rainfall in the South West occurs predominantly during the winter months. As such, the volume of water for the coming year is know with a high degree of certainty by October. Any scarcity price adjustment could be made at this time. This could be incorporated into the current pricing arrangements and dealt with by the exiting metering stock.

Developments in Australia

The Authority notes developments in other jurisdictions regarding scarcity pricing. IPART in New South Wales have recently released a draft report into Sydney Water Corporation's tariffs where in regard to scarcity pricing it stated:[97]

> that scarcity pricing should not be implemented at this time given:
>
> - a lack of water scarcity in the short or medium term
> - doubts about the extent to which vulnerable customers would be adequately protected from very large price increases.

Scarcity pricing was proposed by ACTEW in the Australian Capital Territory as part of the recent tariff inquiry. Scarcity pricing was not introduced due to a lack of time available to adequately assess the ACTEW proposal.

The Authority also notes the comments of the NWC regarding the need for 'more flexible or market-driven pricing approaches to emerge in response to water scarcity'.

Drought pricing has been implemented for a time in Gladstone in Queensland. In addition, as part of the recently proposed augmentation of supply in Gladstone (see Box 5), it was suggested that consumers be able to elect their level of security of supply. Those that valued the extra security from the augmentation would fund its construction whereas those satisfied with the current level would continue to pay the existing charges.[98]

[97] IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services From 1 July 2008: Water – Final Report No 1, 2008,* June 2008, pp 87-89.

[98] See the submission from Callide Power Management available at: www.qca.org.au/files/Callide_Power_Management_Submission.pdf

APPENDICES

Appendix 1: Terms of Reference

INQUIRY INTO COMPETITION IN THE WATER AND WASTE WATER SERVICES SECTOR

TERMS OF REFERENCE

I, ERIC RIPPER, Treasurer, pursuant to section 32(1) of the *Economic Regulation Authority Act 2003* (the ERA Act), request that the Economic Regulation Authority (the Authority) undertake an inquiry into, and provide advice on possible competitive enhancements for the delivery of water and wastewater services, with a view to making recommendations for providing these services in the most efficient, effective and sustainable way.

Key areas of focus will include:

- enhancing the efficiency of future water source procurement (and other significant capital investment) processes, including issues associated with current market structures and mechanisms, such as competitive tendering models, and determining the trigger conditions for committing to the acquisition of a new source;
- opportunities for enhanced competition by introducing third party access regimes to existing water and waste water-related infrastructure, including identifying appropriate principles and mechanisms to implement efficient and effective regimes; and
- other reforms to the water and wastewater market which may enhance competition, including the establishment of water trading mechanisms and the benefits, costs and issues associated with them (e.g. inter-regional trades, market dominance and water hoarding) and arrangements for community service obligations paid by the State Government to service providers.

In conducting the inquiry and developing recommendations, the Authority is to have regard to:

- the roles and responsibilities of participants in the industry, both Government and private sector recognising that certain services (e.g. water transmission and distribution) have strong natural monopoly characteristics;
- approaches taken in other jurisdictions;
- the costs and benefits of alternative industry structures, including transitional costs that may be incurred in changing to a new structure;
- any impacts, including service provision, operational or financial impacts, on existing asset owners and operators; and
- any impact of these reforms on the Government's social, economic and environmental policy objectives, including ensuring environmental and social criteria are taken into account in market structures, tendering processes and access regimes; commitments to the *National Water Initiative* and the Government's response to *A Blueprint for Water Reform in Western Australia* compiled by the Water Reform Implementation Committee.

In undertaking the inquiry, the Authority is to recognise section 26 of the Act, which requires the Authority to have regards to:

- the need to promote regulatory outcomes that are in the public interest;
- the long-term interests of consumers in relation to the price, quality and reliability of goods and services provided in relevant markets;
- the need to encourage investment in relevant markets;
- the legitimate business interests of investors and service providers in relevant markets;
- the need to promote competitive and fair market conduct;
- the need to prevent abuse of monopoly or market power; and
- the need to promote transparent decision making processes that involve public consultation.

The Authority will release an issues paper as soon as possible after receiving the reference. The paper is to facilitate public consultation on the basis of invitations for written submissions from industry, government and all other stakeholder groups, including the general community.

A draft report is to be made available for further public consultation on the basis of invitations for written submissions.

A final report is to be completed by no later than 31 March 2008.

ERIC RIPPER MLA
DEPUTY PREMIER: TREASURER:
MINISTER FOR STATE DEVELOPMENT

Appendix 2: Amendment to the Terms of Reference

Economic Regulation Authority (Water and Wastewater Services Reference) Notice 2008

Given by the Economic Regulation Authority under the *Economic Regulation Authority Act 2003* section 34 (1).

1. Citation

This notice is the *Economic Regulation Authority (Water and Wastewater Services Reference) Notice 2008*.

2. Reference Amended

(1) Under the *Economic Regulation Authority Act 2003* section 33 the Treasurer has amended the reference for the Inquiry into Competition in the Water and Wastewater Services Sector.

(2) The particulars of the amendment are set out in Schedule 1.

Schedule 1 – Particulars of amendment

[cl. 2(2)]

NOTICE OF AMENDMENT TO REFERENCE FOR INQUIRY INTO COMPETITION IN THE WATER AND WASTEWATER SERVICES SECTOR

I, Eric Ripper, under the *Economic Regulation Authority Act 2003* section 33, amend the reference for the Inquiry into Competition in the Water and Wastewater Services Sector (notice of which was published in Gazette 24 July 2007 at p.3660) so that the final report is to be completed by no later than 30 June 2008 instead of 31 March 2008.

ERIC RIPPER MLA
DEPUTY PREMIER; TREASURER;
MINISTER FOR STATE DEVELOPMENT

LYNDON ROWE
CHAIRMAN
ECONOMIC REGULATION AUTHORITY

Appendix 3: Water Corporation, AQWEST and Busselton Water

Water Corporation

The Corporation is a statutory corporation operating under the *Water Corporation Act 1995*. The Corporation was established as a commercially focused utility on 1 January 1996 following a restructuring of the water industry that also saw the roles of water resource manager (now the Department of Environment) and regulator (now the Authority) separated from the functions of the utility. The Corporation is governed by a Board of Directors acting in accordance with Corporations Law and the Board is accountable to the Minister responsible for the *Water Corporation Act 1995*.

The Corporation is a vertically integrated water and wastewater business. It was established in 1995 and given the task of providing "sustainable water services to make Western Australia a great place to live and invest".[99] Prior to the creation of the Corporation, water and wastewater services were provided directly by the Western Australian Government. In undertaking the tasks associated with water and wastewater services, the Corporation must comply with the relevant health and environmental regulations.

The prices the Corporation charges for its services are determined by the Western Australian Government. In making its final determination of prices, the Government takes into account advice that is provided to Government through public processes by the Authority.

During the 2005-06 financial year, the Corporation had revenues of approximately $1.4 billion (including $340 million from the Western Australian Government for the provision of community service obligations) and an after-tax profit of $474 million. A dividend of $362 million was paid to the Western Australian Government, the Corporation's owner.[100]

AQWEST

Bunbury Water Board, trading as AQWEST is a statutory authority established under the *Water Boards Act 1904*. The Bunbury Water Board was established in 1905 and was operated in association with the Bunbury local government authority until 1997 when it was re-formed as a separate entity.

AQWEST provides potable water services to the Bunbury-Wellington region, including water sourcing, treatment, distribution and retailing operations. Water is sourced from the Yarragadee aquifer through 13 production bores and supplied to about 15,000 connections through 332 kilometres of water mains. About 72 per cent of water produced is supplied to residential customers and the remaining 28 per cent is supplied to non-residential customers. AQWEST does not provide wastewater services, which in AQWEST's region of operation are provided by the Corporation.[101]

[99] www.watercorporation.com.au/C/company_index.cfm?uid=6135-9990-9046-5900

[100] Water Corporation Annual Report 2006 p44.

[101] ERA (November 2005), *Final Report on the Inquiry on Urban Water and Wastewater Pricing,* p117.

During 2005-06, AQWEST had total revenues of approximately $8 million and an after-tax profit of approximately $2 million.[102]

Busselton Water

Busselton Water Board, trading as Busselton Water, is a statutory authority established under the *Water Boards Act 1904*. The Busselton Water Board was established in 1906. Busselton Water is governed by a Board of Directors appointed by the Minister for the Environment and acting under powers created by the *Water Boards Act 1904*.

Busselton Water provides a potable water service to the town of Busselton and to surrounding areas, including water sourcing, treatment, distribution and retailing operations. Water is sourced from the Yarragadee aquifer through 8 production bores and supplied to about 9,000 connections through 232 kilometres of water mains. About 82 per cent of water produced is supplied to residential customers and the remaining 18 per cent supplied to non-residential customers. The business has an employee workforce of around 23 full-time-equivalent staff. Busselton Water does not provide wastewater services, which in Busselton Water's region of operation are provided by the Corporation.[103]

During 2005-06, Busselton Water had total revenues of approximately $7 million and an after-tax profit of approximately $2 million.[104]

[102] AQWEST Annual Report 2006 p20.

[103] ERA (November 2005), *Final Report on the Inquiry on Urban Water and Wastewater Pricing,* p151.

[104] Busselton Water Annual Report 2006, Financial Statements p2.

Appendix 4: Competition Principles Agreement Sections Relating to Third Party Access

Access to Services Provided by Means of Significant Infrastructure Facilities

6.(1) Subject to subclause (2), the Commonwealth will put forward legislation to establish a regime for third party access to services provided by means of significant infrastructure facilities where:

(a) it would not be economically feasible to duplicate the facility;

(b) access to the service is necessary in order to permit effective competition in a downstream or upstream market;

(c) the facility is of national significance having regard to the size of the facility, its importance to constitutional trade or commerce or its importance to the national economy; and

(d) the safe use of the facility by the person seeking access can be ensured at an economically feasible cost and, if there is a safety requirement, appropriate regulatory arrangements exist.

(2) The regime to be established by Commonwealth legislation is not intended to cover a service provided by means of a facility where the State or Territory Party in whose jurisdiction the facility is situated has in place an access regime which covers the facility and conforms to the principles set out in this clause unless:

(a) the Council determines that the regime is ineffective having regard to the influence of the facility beyond the jurisdictional boundary of the State or Territory; or

(b) substantial difficulties arise from the facility being situated in more than one jurisdiction.

(3) For a State or Territory access regime to conform to the principles set out in this clause, it should:

(a) apply to services provided by means of significant infrastructure facilities where:

(i) it would not be economically feasible to duplicate the facility;

(ii) access to the service is necessary in order to permit effective competition in a downstream or upstream market; and

(iii) the safe use of the facility by the person seeking access can be ensured at an economically feasible cost and, if there is a safety requirement, appropriate regulatory arrangements exist; and

(b) reasonably incorporate each of the principles referred to in subclause (4) and (except for an access regime for: electricity or gas that is developed in accordance with the Australian Energy Market Agreement; or the Tarcoola to Darwin railway) subclause (5).

There may be a range of approaches available to a State or Territory Party to incorporate each principle. Provided the approach adopted in a State or Territory access regime represents a reasonable approach to the incorporation of a principle in subclause (4) or (5), the regime can be taken to have reasonably incorporated that principle for the purposes of paragraph (b).

(3A) In assessing whether a State or Territory access regime is an effective access regime under the Trade Practices Act 1974, the assessing body:

(a) should, as required by the Trade Practices Act 1974, and subject to section 44DA, not consider any matters other than the relevant principles in this Agreement. Matters which should not be considered include the outcome of any arbitration, or any decision, made under the access regime; and

(b) should recognise that, as provided by subsection 44DA(2) of the Trade Practices Act 1974, an access regime may contain other matters that are not inconsistent with the relevant principles in this Agreement.

(4) A State or Territory access regime should incorporate the following principles:

(a) Wherever possible third party access to a service provided by means of a facility should be on the basis of terms and conditions agreed between the owner of the facility and the person seeking access.

(b) Where such agreement cannot be reached, Governments should establish a right for persons to negotiate access to a service provided by means of a facility.

(c) Any right to negotiate access should provide for an enforcement process.

(d) Any right to negotiate access should include a date after which the right would lapse unless reviewed and subsequently extended; however, existing contractual rights and obligations should not be automatically revoked.

(e) The owner of a facility that is used to provide a service should use all reasonable endeavours to accommodate the requirements of persons seeking access.

(f) Access to a service for persons seeking access need not be on exactly the same terms and conditions.

(g) Where the owner and a person seeking access cannot agree on terms and conditions for access to the service, they should be required to appoint and fund an independent body to resolve the dispute, if they have not already done so.

(h) The decisions of the dispute resolution body should bind the parties; however, rights of appeal under existing legislative provisions should be preserved.

(i) In deciding on the terms and conditions for access, the dispute resolution body should take into account:

(i) the owner's legitimate business interests and investment in the facility;

(ii) the costs to the owner of providing access, including any costs of extending the facility but not costs associated with losses arising from increased competition in upstream or downstream markets;

(iii) the economic value to the owner of any additional investment that the person seeking access or the owner has agreed to undertake;

(iv) the interests of all persons holding contracts for use of the facility;

(v) firm and binding contractual obligations of the owner or other persons (or both) already using the facility;

(vi) the operational and technical requirements necessary for the safe and reliable operation of the facility;

(vii) the economically efficient operation of the facility; and

(viii) the benefit to the public from having competitive markets.

(j) The owner may be required to extend, or to permit extension of, the facility that is used to provide a service if necessary but this would be subject to:

(i) such extension being technically and economically feasible and consistent with the safe and reliable operation of the facility;

(ii) the owner's legitimate business interests in the facility being protected; and

(iii) the terms of access for the third party taking into account the costs borne by the parties for the extension and the economic benefits to the parties resulting from the extension.

(k) If there has been a material change in circumstances, the parties should be able to apply for a revocation or modification of the access arrangement which was made at the conclusion of the dispute resolution process.

(l) The dispute resolution body should only impede the existing right of a person to use a facility where the dispute resolution body has considered whether there is a case for compensation of that person and, if appropriate, determined such compensation.

(m) The owner or user of a service shall not engage in conduct for the purpose of hindering access to that service by another person.

(n) Separate accounting arrangements should be required for the elements of a business which are covered by the access regime.

(o) The dispute resolution body, or relevant authority where provided for under specific legislation, should have access to financial statements and other accounting information pertaining to a service.

(p) Where more than one State or Territory access regime applies to a service, those regimes should be consistent and, by means of vested jurisdiction or other cooperative legislative scheme, provide for a single process for persons to seek access to the service, a single body to resolve disputes about any aspect of access and a single forum for enforcement of access arrangements.

(5) A State, Territory or Commonwealth access regime (except for an access regime for: electricity or gas that is developed in accordance with the Australian Energy Market Agreement; or the Tarcoola to Darwin railway) should incorporate the following principles:

(a) Objects clauses that promote the economically efficient use of, operation and investment in, significant infrastructure thereby promoting effective competition in upstream or downstream markets.

(b) Regulated access prices should be set so as to:

(i) generate expected revenue for a regulated service or services that is at least sufficient to meet the efficient costs of providing access to the regulated service or services and include a return on investment commensurate with the regulatory and commercial risks involved;

(ii) allow multi-part pricing and price discrimination when it aids efficiency;

(iii) not allow a vertically integrated access provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent that the cost of providing access to other operators is higher; and

(iv) provide incentives to reduce costs or otherwise improve productivity.

(c) Where merits review of decisions is provided, the review will be limited to the information submitted to the original decision-maker except that the review body:

(i) may request new information where it considers that it would be assisted by the introduction of such information;

(ii) may allow new information where it considers that it could not have reasonably been made available to the original decision-maker; and

(iii) should have regard to the policies and guidelines of the original decision-maker (if any) that are relevant to the decision under review.

Appendix 5 Glossary

ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ACG	Allen Consulting Group
ACT	Australian Competition Tribunal
AQWEST	Bunbury Water Board trades as AQWEST
Authority	Economic Regulation Authority
AWA	Australian Water Association
CCI	Chamber of Commerce and Industry
CPSU	Community and Public Sector Union
CSO	Community Service Obligation
DPI	Department of Planning and Infrastructure
DTF	Department of Treasury and Finance
DoW	Department of Water
EPA	Environmental Protection Agency
GAWB	Gladstone Area Water Board
GEDC	Goldfields Esperance Development Commission
IMO	Independent Market Operator – oversees the Western Australian electricity market
IPART	Independent Pricing and Regulatory Tribunal (NSW)
IPE	Independent Procurement Entity
IWSS	Integrated Water Supply Scheme – provides water supply in South West
kL	Kilolitres, which is 1,000 litres
LRMC	Long Run Marginal Cost
NCC	National Competition Council
NEM	National Electricity Market – the East Coast electricity market
NPV	Net Present Value
NWI	National Water Initiative
Ofwat	The economic regulator of the water and sewerage industry in England and Wales
QWC	Queensland Water Commission
REU	Resource Economics Union
SHC	Standard Headworks Contribution
SSDP	Second Seawater Desalination Plant – proposed to be built at Binningup
SWIA	South West Irrigation Area
UDIA	Urban Development Institute of Australia
UUA	United Utilities Australia
WACOSS	Western Australian Council of Social Service

WEM	Wholesale Electricity Market – the Western Australian electricity market
WSAA	Water Services Association of Australia