

## **Goldfields Esperance Water Supply Project**

### **Summary of the Project and the United Utilities Australia submission to the Economic Regulation Authority**

**29<sup>th</sup> July 2005**

### **Executive Summary**

In August 2004 Treasurer Eric Ripper initiated an inquiry by the Economic Regulation Authority (ERA) into the cost of supplying bulk potable water to Kalgoorlie-Boulder.

The ERA was asked to compare the cost of transporting water from Perth to Kalgoorlie-Boulder to the cost of the proposal by United Utilities (the Goldfields Water Supply Project) to transport desalinated seawater by pipeline from Esperance to Kalgoorlie-Boulder.

A cost-benefit analysis of each option was to be carried out, including the impacts on consumers, the impacts on State Government finances, the potential to enhance regional economic development and the potential to defer capital expenditure on water source development for Perth.

### **The Goldfields Water Supply Project**

United Utilities Australia proposes to build and operate a 60-100 ML/d seawater desalination plant at Esperance

A 400km pipeline will take the resulting fresh water to users between Esperance and Kalgoorlie and supply bulk water to the Water Corporation.

UUA has worked closely with the ERA to develop an analysis of the Goldfields Water Supply Project. It has been supported in this by independent economic consultants. UUA has provided the ERA with the results of its analysis in a series of economic papers through the review period. This document is a summary of those papers. A detailed submission has been provided to the ERA.

The **key conclusions** of this work by UUA are that:

- The Water Corporation should buy water from the proposed project to supply its customers in the Goldfields in preference to equivalent, more expensive water from Perth;
- The State will gain a net benefit from the project in regional and economic development, with the benefit exceeding \$120 million measured under the ERA economic approach.

UUA believes the project is the logical strategic option for the supply of large amounts of additional water to the Goldfields. Its strategic benefits include:

- Substantial economic development
- Saving 11 GL/year of water currently pumped from Perth
- Alternative water supply to the Goldfields
- No increase in real cost of supplying bulk water to the Goldfields
- Reduction in capital investment in G&AWS
- Substantial risk transfer to private sector
- Diversification of water resources away from rainfall-dependency
- Economic benefits of introducing a private sector operator to provide a benchmark for Water Corporation efficiency gains

UUA seeks from Government support to enter into a bulk water supply contract with UUA. This is similar to arrangements in the gas supply market of Western Australia.

UUA has established that there is significant unmet demand for water from the mining industry in the Goldfields that is sufficient to justify the project proceeding. The Water Corporation's evidence to the Inquiry appears to be that it is unable to meet such additional, 'step change' demand without significant immediate capital investment in the G&AWS but it could meet the demand over several decades.

The Goldfields Water Supply project is the most efficient manner in which to provide a significant increase in the volume of water available in the Goldfields region of Western Australia. It is the only way in which to achieve this and retain flexibility to meet additional growth opportunities.

**UUA believes it has established that the Goldfields Water Supply Project will provide significant economic benefits, environmental and financial savings to the State, and cheaper water over the next 25 years and beyond.**

## Response to the Inquiry on the cost of supplying bulk potable water to Kalgoorlie-Boulder

Summary of UUA's responses to the Reference

Reference sn	UUA Response
1	<b>The CURRENT COST of bulk water delivered to Kalgoorlie-Boulder by the Water Corporation is around \$5/kL.</b> The avoidable cost is more than \$3/kL. UUA has insufficient information to identify the CSO itself, but notes that the ERA draft report indicates a figure of \$33 million per annum, including Esperance.
2	Current indications are that <b>UUA COSTS</b> will be commercially-acceptable. The commercial price should be within the range of avoidable cost to current cost, i.e. the range \$3-\$5/kL, incorporating a valuation of risk transfer benefits.
3	The <b>COST SAVING</b> to the Water Corporation will be an amalgam of avoidable costs, risk transfer and other priced elements. The avoidable cost is more than \$3/kL. UUA believes that the price for bulk water will lie in the range between avoidable cost and current cost, taking into account issues such as risk transfer.
4	The <b>IMPACT UPON STATE FINANCES</b> will be positive – the actual amount is open to debate until the Project moves toward bankability and contract close. The Project will only proceed when economic demand for water is proved, and this will – in itself – provide a positive balance to Government finances through mine royalty payments.
5	<b>OVERALL COSTS AND BENEFITS WILL BE AT LEAST \$120 MILLION:</b>  the project will have a capital value of over \$400 million, most spent in WA. The present value of implied new mining production of around \$3b will have a net value to the State Government around \$400 million, without taking into account the positive impact of new employment and other investment, and without considering industries such as tourism, agriculture and aquaculture. In the ERA economic framework this generates an overall surplus of \$40 million for the project.



## **Outline of the Goldfields Water Supply Project**

United Utilities Australia proposes a visionary new water project for Western Australia:

- A state-of-the-art desalination plant at Esperance and a new pipeline capable of transporting 20GL a year (about 60 ML/d) of fresh water to Kalgoorlie and the Goldfields.
- A new, efficient pipeline carrying desalinated water from Esperance to Kalgoorlie.

Funded, constructed and operated by United Utilities, the project will enhance the supply of water to Kalgoorlie-Boulder, Esperance and the surrounding mining industry. UUA has received expressions of interest for large volumes of water from several mining companies and believes that the ultimate requirement may be for as much as 33GL a year (100 ML/d) of water in the Goldfields. No alternative approach offers the same flexibility to meet future economic development requirements.

No water will be required to be pumped from Southern Cross to Kalgoorlie, although UUA believes that it will be prudent to retain the G&AWS over its current length. This will offer an alternative source of water to Kalgoorlie-Boulder and retain flexibility to provide water into parts of the Integrated Water Supply Scheme. All seasonal peaks will be met by the project by the provision of storages at required points in the new system. The desalination process will be robust and achieve 'world best practice' in reliability and environmental performance. Carbon dioxide emissions generated by the desalination process will be neutralised.

The Goldfields water supply project is the most efficient method of providing a step increase in the volume of water available in the region. It is the only way to achieve an increase in water supply and retain flexibility to meet additional growth opportunities. The project will make it unnecessary to pump any water from Perth to Kalgoorlie.



## **United Utilities**

UUA is a wholly owned subsidiary of UK-based United Utilities PLC, one of the world's leading multi-utility service providers, whose website is [www.unitedutilities.com](http://www.unitedutilities.com). United Utilities PLC, a FTSE Top 50 company with turnover exceeding A\$5 billion, operates utilities in Britain, Europe, North America, and in Asia.

UUA operates water and wastewater projects in New South Wales, Victoria, Queensland and South Australia. Its website is [www.unitedutilities.com.au](http://www.unitedutilities.com.au). UUA has operated a large reverse osmosis plant in Queensland for several years, and has access to all of the required skills to deliver and operate the Goldfields Water Supply Project.

UUA proposes to make new water for Western Australia.

## **Background and History of Water in WA**

The south west corner of Western Australia is provided water through the Integrated Water Supply System (IWSS) which services an area from Quinns Rocks to Mandurah and incorporates the Goldfields and Agricultural Water Supply (GAWS).

A study by the Australian Academy of Technological Sciences and Engineering Western Australian Division provided the basis for this summary of climate change in Western Australia.

Over the past 25 years the south west of Western Australia has experienced a 10 % decline in average rainfall. Over that period average annual inflow has been 160GL. In 2001 the winter inflow was only 30GL – an 80% reduction on what would normally be expected. In 2002 rainfall was again well below the average and the situation demanded action.

Scenarios developed by CSIRO predict higher temperatures and a potential for lower rainfall, coupled with increased uncertainty, in the south west corner of Australia over the next 70 years due to climate change. The extent of this decline, or whether it will continue, is not known, and neither is it possible to forecast the future impact of climate change upon WA's rainfall with any certainty.

Water supplies for the IWSS should be adequate for most of the next decade, providing the average rainfall for the past 25 years continues. This gives at least a decade for careful future planning based on a greater understanding of climate change.

Water supplies for the IWSS will be adequate for the next decade and probably beyond, providing the average rainfall for the past 25 years continues. This gives at least a decade for careful future planning based on a greater understanding of climate change. Diversification of water resources, including the use of seawater desalination, is a key part of planning.



Higher temperatures will increase water demand by vegetation through increased evapo-transpiration. The 10% decline in rainfall will also cause a 50% fall in water inflow to dams supplying the IWSS.

As a result of declining rainfall in recent years, the IWSS has been forced to draw approximately half its supply from groundwater and half from dam water. The overall position has been aggravated by unusually dry years in 2001 and 2002.

### **Climate Change**

The potential impact of climate change makes it very difficult to accurately forecast future available supplies of water. Therefore, future planning and management must be based on the need for flexibility and on achieving the most economical and sustainable resource use.

Total consumption in the IWSS in 2000/2001 was 293GL. In addition, 295GL of groundwater from 'private bores' was used for lawns and gardens, agriculture, public parks, golf courses and industry. In 2001/2002 restrictions on the use of sprinklers on gardens reduced water consumption from the IWSS to 250GL.

The study went on to outline how the Water Corporation is currently planning to reduce per capita water consumption, falling progressively from 181KL to 155KL by 2012, and to remain at that level until 2030. This would produce a total demand for the IWSS of 369GL by 2030, based on a population of 2.175 million in the greater metropolitan area.

If the consumption were held at 170KL per capita the requirement from the IWSS would be 402GL. If the per capita consumption were reduced further to 130KL the demand for the IWSS would be 315GL. There is a real need to reduce per capita consumption towards this lower level.

*"The proposed action would be:*

- *Continuation of the restriction on the use of sprinklers for watering gardens and lawns to two days a week.*
- *Encouragement of the use of 'grey' water (i.e. drainage from the shower and laundry), which is equivalent to 29% of domestic water consumption. This water can be used on gardens until wastewater reuse is fully in place.*
- *Requiring water efficient fittings on showers and taps to be standard in new homes and strongly recommended in existing homes.*
- *Maintaining a focused education program with a theme that water is a scarce resource and should be treated as such."*

In this period of uncertainty, planning is well underway to develop a robust system with capacity to adapt to change and to respond to periods of drought. There are two principal options, neither mutually exclusive of the other and probably best combined to ensure long term continuity of water supply.

### **Expansion of groundwater resources**

In a declining rainfall climate, groundwater will be a more secure future resource for the IWSS than surface inflow to dams. In the short term, there is a need to expand the sources of groundwater to reduce the pressure on currently used aquifers. This expansion could also provide a buffer for an extended dry period, but would not necessarily be enough for a long-term robust system.

The largest and most resilient untapped resource is the Yarragadee aquifer south of Capel. Recharge levels and structural characteristics of this resource need to be fully identified. At the same time the possible effects of extraction on the associated vegetative communities needs to be determined.

### **Development of a Desalination Capacity in WA**

The Water Corporation has recognised that development of reverse osmosis desalination for supply to the IWSS will guarantee a significant water resource independent of climatic factors.

The Goldfields water supply project will create a new water resource for Western Australia. The use of desalination will make the resource independent of declining rainfall.

### **The Goldfields and Agricultural Water Supply (G&AWS)**

The discovery of gold at Coolgardie in 1892 and at Hannan's (later Kalgoorlie) in 1893 led to the development of to the creation of the world-famous Golden Mile, some 580 kilometers from Perth. From the outset, lack of water was a major problem on the Goldfields. Early methods of supply were expensive, cumbersome and, too often, unreliable.

According to the Water Corporation's history of the Goldfields and Agricultural Water Supply, the only potable water available in the Goldfields was rainwater or groundwater. The groundwater was invariably saline, and the only treatment for saline water was condensation.

Water from condensing plants was selling for as much as two shillings and sixpence a gallon (then equivalent to more than 50 cents for 4.55 litres) over a hundred years ago.



## **Eastern Goldfields Water Scheme**

In 1895, Western Australia's Engineer-in-Chief, C.Y. O'Connor, was asked to produce a practical plan for pumping water to the Goldfields.

The challenge was to transport water more than 560 kilometres from the Mundaring Reservoir to Coolgardie, raising it 390 metres from source to destination.

Work began in 1898 and the scheme was officially opened at Mt Charlotte Reservoir in Kalgoorlie on 24 January 1903.

### **Construction of the Pipeline**

The original pipeline was laid below ground. It was made of 762 millimetre diameter steel pipes manufactured in two half-circle sections, which were joined together with two 'locking bars' to form a complete pipe. The sections of pipe were connected using lead-packed jointing rings.

### **Upgrading and Maintenance**

Extensive alterations and enlargements have been made over the years. Sections are now welded and form a continuously welded pipeline mounted on concrete blocks above ground. Some of the pipe has been replaced or upgraded in size. Some sections include a duplicate pipe. Storages have been enhanced.

The rest of the original pipe (the locking bar pipe) is still serviceable.

Currently the Water Corporation has determined that the most cost-effective solution for the long-term supply of water to the Goldfields is to refurbish the pipe both internally and externally. A 10-to-15-year refurbishment project is currently under way at a cost of approximately \$275/metre, and the repaired pipeline should have a minimum of 50 to 100 years of life. It is estimated that the current maximum, sustainable capacity of the Goldfields supply is 13 GL per year (about 35 ML/d). If the pipe had to be replaced rather than refurbished, the cost would double. The Water Corporation has estimated the replacement cost of the G&AWS at \$640 million. In 2001 ACIL Tasman estimated that an increase of capacity of 15 ML/d would cost around \$190 million.

UUA believes that the G&AWS provides an effective approach to deliver existing volumes of water, but not to meeting 'step increases' in demand.



## **Development of the Scheme since 1903**



Under the impetus of increasing population and improved farming techniques, agricultural development proceeded quickly after 1903 and the settled area of the State soon extended along the Great Eastern Goldfields Railway east to Merredin.

In 1947 the Commonwealth Government agreed to assist Western Australia financially to provide water to the agricultural districts and towns along the Great Southern Railway; and to increase the supply of water to the Eastern Goldfields area to permit expansion of the gold mining industry. (This is known as the Agricultural Areas, Great Southern Towns and Goldfields Water Supply Scheme.)

The scheme provided for the construction of a pumping main from Wellington Dam to Narrogin and branch mains to the southern towns and farmlands, the enlargement of some sections of the Goldfields main pipeline, and the replacement of the original steam-driven pumping stations with electrically-driven pumping units.

The water supply system in the northern area was supplied from Mundaring Weir and became known as the Goldfields and Agricultural Water Supply Scheme.

## **Use and Conservation of Scheme Water**

The G&AWS Scheme supplies water to approximately 33,000 rural and town connections, from outer metropolitan Mundaring, through the Wheatbelt area, to the Goldfields.

This water is used for household and commercial water supply, farm water supply for stock, and mineral processing. Some towns (e.g. Kalgoorlie and Northam) supplement their water supply from this scheme by using treated wastewater to irrigate playing fields, racecourses and golf courses.

The G&AWS Scheme is now approaching its capacity, and measures are being taken to ensure that the Goldfields and Agricultural regions have sufficient water supplies for the future.

The Water Corporation estimates demand on the G&AWS Scheme will increase by 50% by 2008. (Reference: Presentation to Esperance Water Forum 19 September 2002 by Graeme Hughes). The forecast future level of demand cannot be met by the existing pipeline.

The Kalgoorlie/Boulder Water Efficiency Program, which aims to make the area the first Waterwise city in the world, is encouraging the community to use water more efficiently.

## **The Cost of Delivering Water to Kalgoorlie**

The Water Corporation has provided a number of figures to describe the cost of delivering water to Kalgoorlie.

According to the Water Corporation's current website the cost is \$3.71/KL.

The Water Corporation figure of \$3.71/KL was quoted in the ACIL Report: *The True Cost of Supplying Water to Kalgoorlie and the Goldfields via the G&AWS*, dated 24 May 2002.

The Water Corporation has set the cost of delivering increased capacity to Kalgoorlie at \$4.25/KL. (Reference Final Report to the Department of Minerals and Petroleum Resources, *The True Cost of Supplying Water to Kalgoorlie and the Goldfields via the G&AWS*, 24 May 2002, Footnote 26)

At the Esperance Water Forum, on 19 September 2002, Graeme Hughes of the Water Corporation told the meeting that the cost of delivering water to Kalgoorlie from the G&AWS was \$5.09/KL.

### **Water Corporation figures**

- |  |             |
|--|-------------|
| • Present cost                               | • \$3.71/KL |
| • Cost including 6% rate of return on assets | • \$5.09KL  |
| • Cost to provide increased capacity         | • \$4.25KL  |

ACIL Consulting (Final Report to the Department of Minerals and Petroleum Resources, *The True Cost of Supplying Water to Kalgoorlie and the Goldfields via the G&AWS*, 24 May 2002) lists the cost of supplying water to Kalgoorlie in a range from \$3.07/KL to \$4.91/KL depending on what factors are taken into account.

A variety of figures have been given as the cost of providing water to Kalgoorlie. The variations arise from the factors that are included in the cost



analysis. Including the \$190 million of capital expenditure proposed to upgrade the G&AWS over the next 15 years would produce a figure of about \$6.82/KL.

## **Avoidable Cost of Water**

The Water Corporation expressed the following view on the UUA project in the ERA's Draft Report on Urban Water and Wastewater Pricing, released on 18 March 2005:

"Water Corporation has supported the investigation of this proposal in some detail. While the proposal has the potential to meet the growth in water demand in Kalgoorlie at a lower cost than the expansion of the Goldfields and Agricultural Water Supply (G&AWS), it is not a cost effective replacement of the existing G&AWS capacity.

An alternative supply that replaced Kalgoorlie's existing water demand would provide source benefits in Perth and would save energy, chemical and some maintenance and replacement costs for the G&AWS. These savings are "avoidable costs". However, the investment that has been made in the existing pipelines, pump stations and storage are "sunk costs" and cannot be avoided if demand is met by an alternative source.

The Corporation is willing to purchase water based on the avoidable cost. Any higher price would result in an increase in the Community Service Obligation subsidy required to provide country water supplies. We understand that the avoidable costs are insufficient to make United Utilities proposal viable."

The higher level of demand for potable water proven by UUA means the Water Corporation is correct in the first instance – "the proposal has the potential to meet the growth in water demand in Kalgoorlie (and the region) at a lower cost than the expansion of the G&AWS". It should be on this basis that the project is assessed.

The Water Corporation introduces another figure for the cost of water into the debate but it would appear to be a little premature in making these comments, particularly as UUA has not made a pricing proposal.

Readers of this submission and other submissions on the cost of water may become confused by the various descriptions of the cost of water and the differing dollar values suggested.

The "avoidable cost" is the money you could save by performing the service in a different way. When calculating avoidable cost you would include the following costs:

- Operations and maintenance;
- Replacement of capital equipment;
- Additional investment in capital equipment to upgrade the existing service; and
- The cost of sourcing water.

The true cost of water includes all of the costs including the capital value of pipeline and plant.

The “avoidable cost” of delivering 11GL of water from Mundaring Weir to Kalgoorlie was independently assessed by Acil Consulting in their Final Report to the Department of Minerals and Resources in May 2002 as \$2.72/kL .

In its recommendation at section 6 of the report it said “The Study Team considered that the use of the present value method of estimating the value of avoidable costs provides a better answer to the availability question. However, as stated earlier this study could only consider the known elements of availability.

Our recommendation is that \$2.72/KL be used as a conservative answer to a very complex problem.”

That figure would have to be indexed by the rate of inflation, the increasing cost associated with sourcing water and any additional money set aside by Government for maintenance, replacement and expansion of the existing G&AWS. Government in last year’s budget set aside \$190million over the next fifteen years for that purpose.

The ERA Draft Report on the Inquiry on Urban Water and Wastewater Pricing indicates that the price of sourcing water by “traditional means” has increased to \$1.00/KL; \$1.10/KL if you use the price of water from the proposed Kwinana desalination plant.

Using ACIL’s 2002 figure as the base point we would suggest that the avoidable cost of water to Kalgoorlie is about \$3/kL.

## **Public/Private Sector Co-Operation**

The water industry in Australia underwent significant reform in the 1990s under the principles of the National Competition Policy. The NCP addressed issues such as:

- The cost and prices of services on viable and justifiable bases;
- Transparency of subsidies;
- The reform of government-owned monopolies;
- Water allocation and trading in water entitlements;
- Environmental and water quality; and



- Public consultation and education.

While there has been no outright sale of water utilities in Australia, there exists a variety of public/private co-operative arrangements.

Managing Director of the Water Corporation, Dr Jim Gill, delivered a paper in Pretoria, South Africa, (*The Public/Private Spectrum in the Water Services Industry*) at the Symposium on Private Public Participation for 2000 and beyond.

In that paper, Dr Gill outlines potential forms of co-operation between the private and public sectors in the delivery of water. The beneficiaries, according to Dr Gill, will be government, customers and staff.

United Utilities Australia's proposal is a co-operative model drawing together the best features of the private and public sectors. Water Corporation would remain the services operator of water in the region, UUA the bulk water supplier. Most risks in the project will transfer to UUA, as the private sector supplier.

This contractual relationship would be similar to that between private suppliers and the State in the Western Australian gas sector, where bulk purchase agreements exist to set prices, volumes and other output specifications.

## **Review of the Goldfields Water Supply Project**

In early 2001, the State Government called for expressions of interest to assist with the provision of a sustainable water supply to the Goldfields-Esperance region.

Several substantial responses demonstrated a desire by the private sector to be directly involved in the development of scheme supply options. These were subsequently considered in the Draft Goldfields-Esperance Water Supply Region Strategy.

The Draft Strategy assessed alternatives based on a range of expected demands and finally concluded that "... there is no immediate imperative to begin development of an alternative water supply to the existing Goldfields and Agricultural Water Supply (G&AWS)".

However the Government remained keen to assess the viability of a project to pipe desalinated seawater from Esperance to the Goldfields and a commitment was given in the State Water Strategy (released on 10 February 2003) that "The Water Corporation and the Office of Water Regulation would enter into discussions with United Utilities Limited to ascertain if a cost-effective (pipeline) solution was possible".

A Steering Committee was established with the following membership:

- Dr Jim Gill                      Managing Director of the Water Corporation  
  (Chairman)
- Dr Brian Martin              Office of Water Regulation
- Mr Graham Dooley      Managing Director, United Utilities Australia Pty  
  Ltd (UUA)

A joint working party, drawn from the Water Corporation and UUA, was established to progress the work under the direction of the Steering Committee.

The taskforce concluded in its final report: A New Water Supply to the Goldfields that the project was viable but demand was not proven.

On 15 January 2004 the Minister for Government Enterprises the Hon. Nick Griffiths announced that the "proposal to pipe desalinated water from Esperance to the Goldfields has been deferred due to insufficient industry demand for fresh water".

The Minister said after ascertaining future demand and assessing the price users would pay for water, the proposed project had been rendered impractical until increased demand or advances in technology could reduce the per kilolitre cost of providing alternative supplies.

UUA feels that demand has now been proved, and the project can proceed to its next stage.

## **Sustainability**

*The Western Australia State Sustainability Strategy* says "The sustainability of our water supply is an issue of concern to many Western Australians. There is a need to provide a vision for the future, new sources of supply and new ways to save water."

It lists its objectives as:

- The reduction of consumption;
- Extending the responsibility for water supply to the planning system and to local government for groundwater supplies;
- Achieving significant wastewater reuse; and
- Investigating long term innovative water supply options that have broad sustainability outcomes.

UUA believes the process that it is currently involved in with the ERA is a key first step in a thorough investigative process. The proposal meets all triple bottom line criteria and will have significant economic benefits for the Goldfields and Esperance region.



## **Strategic Benefit**

UUA believes it is accepted by most, if not all, interested parties that the Goldfields Esperance Water Supply Project is the best strategic option to provide additional water to the Goldfields. Its benefits include:

- Substantial economic development
- Commercial approach to demand-limiting Water Corporation headworks charges
- Saving 11 GL/year of water currently pumped from Perth
- Alternative water supply to the Goldfields
- No increase in real cost of supplying bulk water to the Goldfields
- Reduction in capital investment in G&AWS
- Substantial risk transfer to private sector
- Diversification of water resources away from rainfall-dependency
- Economic benefits of introducing a private sector operator to provide a benchmark for Water Corporation efficiency gains

The strategic benefits of the Project are considered as part of the economic assessment provided by UUA where they are tangible and therefore can be assigned a value.

## **Securing Demand from Industry**

Following the announcement by Minister Griffiths, UUA went back to industry in the Goldfields region to test demand for additional water.

Over 12 months, UUA has secured expressions of interest from the mining industry for long term water supply contracts for a minimum of 30ML/d.

Additional requirements are being identified and UUA anticipates that over the next 12-15 months it will secure commercial agreements for this water and identify additional requirements that will lead to a project with a capacity between 60 and 100 ML/d.

## **Referral to the Economic Regulation Authority**

On 13<sup>th</sup> January 2005 the Treasurer, the Honourable Eric Ripper, asked the Economic Regulation Authority to undertake an inquiry into the cost of supplying bulk potable water to Kalgoorlie-Boulder and surrounding regions.

The current supplier of bulk potable water is the Water Corporation: the water is sourced in Perth and piped to Kalgoorlie.

United Utilities Australia has proposed piping desalinated seawater from Esperance to Kalgoorlie as an alternative.

The overall costs and benefits of each option are to be considered.

The request was in accordance with section 32(1) of the *Economic Regulation Authority Act 2003*, which allows the Treasurer to refer such an inquiry to the Authority.

The matters that the Treasurer requested the ERA to consider in undertaking the inquiry include:

- The current cost of providing bulk potable water to Kalgoorlie-Boulder and surrounding regions;
- The cost of bulk potable water delivered to Kalgoorlie-Boulder and surrounding regions by United Utilities Australia, by means of its proposed desalinated seawater pipeline from Esperance;
- The cost savings to the Water Corporation over the next 25 years if United Utilities Australia were to provide bulk potable water to Kalgoorlie-Boulder and surrounding regions;
- The impact of the alternative options on the State Government's finances; and
- The overall costs and benefits of each option, including the impact on consumers and enhancement of regional economic development in Kalgoorlie-Boulder and the State in general.

## **Value of UUA Water – comparator approach**

UUA proposed to the ERA that the logical way to establish the price competitiveness of the proposal to the State was to compare the cost of providing bulk water from Esperance versus the cost of providing the same volumes from Perth. This approach largely ignores the (strategic) undesirability of pumping any additional water from Perth to Kalgoorlie at a time when water resources around Perth require diversification, but such an analysis is economic rather than strategic.

UUA has worked with economic consultants to develop a costed comparison of these alternative approaches, which show that – for the increased volumes required in the Goldfields – it is cheaper for the Government to purchase bulk water from the Goldfields Water Supply project than it is for Government to invest further funds in the G&AWS for growth of supply.

The cost comparison demonstrates that the cost of supplying 60-100 ML/d of water to the Goldfields using these alternative approaches would be:



	Present cost	Cost of water
Cost of supplying 60-100ML/d from Esperance (Goldfields Water Supply Project by UUA)	\$715 million	\$2.78/kL
Cost of supplying 60-100ML/d from Perth (extended and duplicated G&AWS by the Water Corporation)	\$1,305 million	\$5.07/kL
Avoided cost of purchasing bulk water from UUA		\$3.95/kL

Based on data from UUA, the Water Corporation (public sources) and knowledgeable third parties and produced prior to the release of the ERA Draft Report

An avoided cost of \$3.95/kL for the supply of water indicates that the State should preferentially purchase water from the Goldfields Water Supply Project to meet demand in the Goldfields because this is the lowest cost at which water can be provided to meet that demand.

It is stressed, however, that this is not a firm price, rather a guide to the differential between these approaches. It will be possible to provide a firm tariff proposal to Government once UUA has entered into supply agreements with mines and has a detailed view of demand and has completed detailed engineering and environmental studies.

## Cost-Benefit Analysis of the Project – ERA and UUA approach

In the case of cost-benefit analysis, UUA sees the key economic comparison being the Goldfields Water Supply Project with its need for Government commitment to a process that may (if demand can be proved) lead to economic development and an alternative water supply to the Goldfields, versus continued incremental improvements to the G&AWS that cannot realise the same benefits. The cost-benefit analysis therefore needs to factor in the value of the different economic benefits.

At the draft report stage the ERA indicated that it believed the net benefit was -\$55 million. Subsequent calculations by UUA based on the framework adopted by ERA suggest that a revised benefit of at least \$120 million is correct.

For the purpose of assessing whether the Government should support development of the project, however, a different cost-benefit analysis is required, which values the alternative decisions that might be taken.

These have been expressed by UUA and its economic advisors as economic choices between the different economic benefits. Government must make these economic choices.

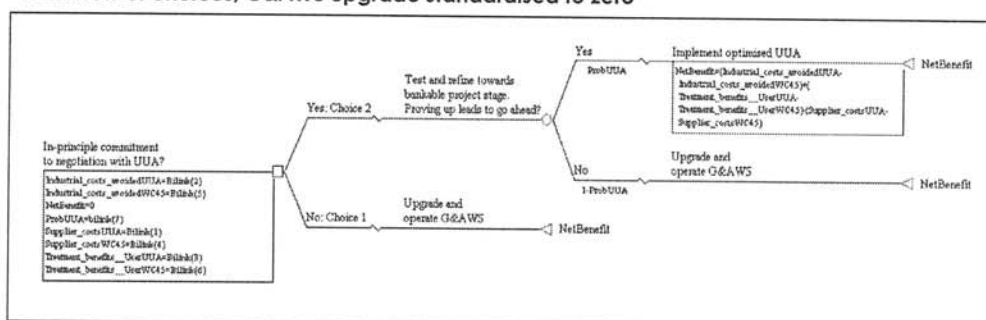
Choice 1 is a decision to proceed with upgrade of the G&AWS without extension to provide water to new industrial or domestic consumers. Choice 1

probably means that there will never be an alternative water supply to the Goldfields and that the economic benefits offered by the Project will never be achieved.

Choice 2 is a decision to make a commitment to the Goldfields Water Supply Project, followed by UUA entering supply agreements with Government and with new industrial users. If successful this leads to construction of the Goldfields Water Supply Project by mid 2008. If unsuccessful the Government reverts to choice 1. There is no obvious 'downside' to choice 2.

The following diagram expresses this economic choice.

Overview of choices, G&AWS upgrade standardised to zero



In the view of UUA this 'economic choice' approach makes it desirable for Government to select choice 2 in order to maintain its options for water supply and economic development in the Goldfields. Providing Government offers UUA a mandate to further development UUA is prepared to accept the financial risk involved in developing commercial agreement to prove demand conclusively.

ERA elected not to approach the review in this manner, but UUA continues to believe it is appropriate to the decision framework.

## Conclusion

The Goldfields water supply project is the most efficient manner in which to provide a step increase in the volume of water available in the Goldfields region of Western Australia. It is the only way in which to achieve this and retain flexibility to meet additional growth opportunities.

**UUA believes that Government should now support the further development of the Goldfields Water Supply Project by offering a firm commitment to the Project.**



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