National Centre of Excellence in Desalination AUSTRALIA

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Dr Wendy Craik
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Productivity Commission
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Via email: urbanwater@pc.gov.au

Comment on Draft Report – Australia's Urban Water Sector

Dear Dr Craik

Thank you for the opportunity to comment on the Draft Report on Australia's Urban Water Sector released in April 2011. The draft Report is comprehensive and contains much useful data and opinion on how to achieve ongoing reform and continuous improvement which we support.

I write on behalf of the National Centre for Excellence in Desalination Australia (NCEDA), a joint venture of 12 Australian universities and CSIRO. Its research activities are funded from the National Urban Water and Desalination Plan, to date worth $22 million, and are in partnership with water utilities, state governments, research institutions and private enterprise.

The Centre, established in 2009, has a mandate to:

- Optimise and adapt desalination technology for use in Australia's unique circumstances;
- Develop suitable desalination technology for use in rural and regional areas; and
- Efficiently and affordably reduce the carbon footprint of desalination facilities and technologies.

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I am restricting comment to two issues specifically related to desalination: security of supply and cost of desalination.

Security of Supply

Your Draft Report suggests supply augmentation decisions made by Australian water utilities to build large seawater desalination plants were incorrect and that there were other alternatives. The Draft Report states:

> *There is sufficient evidence available to the inquiry to conclude that much of the recent investment in supply augmentation using desalination (table 1) could have been smaller in scale and from a source other than desalination, while maintaining security of supply.* (Page XXI.)

It also claims that:

> *Based on modelling for Melbourne and Perth, inefficient supply augmentation could cost consumers and the community of these two cities between $3.1 to $4.2 billion over 20 years, depending on modelling assumptions.* (Page XVI.)

The cost analysis is based on:

- The decision to build the 164 GL/y Wonthaggi Desalination Plant (Melbourne) instead of transferring cheaper rural water entitlements using the 75 GL/y Goulburn Valley to Sugarloaf Dam Pipeline; and
- The decision to proceed with the 50 GL/y Southern Seawater Desalination Plant at Binningup south of Perth instead of taking cheaper groundwater from the SW Yarragadee aquifer.

Your Draft Report appears to assume that alternative sources of water will always be available. However, if a serious drought occurs, such as that experienced in the eastern states during 2002-2009, then it is likely that only a small percentage of the full entitlement would be available from Goulburn Valley for Melbourne when it was most needed. There is no point in owning an entitlement if there is no water.

In Western Australia, the impact of the drying climate is continuing with record low rainfalls, and the capacity of the SW Yarragadee to sustain a large continuous abstraction for Perth over the design life of the desalination plant (more than 50 years) is also doubtful.

In both Melbourne and Perth, desalination has the potential to provide large, sustainable, climate independent base load water to ensure security of supply. In fact, seawater desalination represents the only new urban water source that can be augmented at any time without impact on other parts of the water cycle. Of course, stored dam and groundwater will continue to be available to supply the remaining (smaller) base load and summer peak demand, although in WA dam levels are at all time critical lows and further dry years are anticipated.

The use of a continuous supply of fresh water that is not climate dependent has a huge impact on likely frequency of water restrictions for the general public, and for industries' ability to provide jobs and support Australia's economy. In a consultative meeting with

industry representatives which the writer attended in Adelaide in 2007 (when SA Water was considering desalination) we were told the proposal to build a 50 GL/y desalination plant would change the likelihood of restrictions from:

> *Level 6 (the most restrictive) every 20 years*

to:

> *Level 2 (the mildest) every 100 years.*

We would urge that in completing the Final Report you might include some analysis of likelihood of restrictions with desalination to give a more accurate picture.

Cost of Desalination

Your report also encourages scarcity pricing (Draft Finding 7.1) and elimination of restrictions:

> *so that consumers can choose tariff structures that best suit their preferences for price stability and security of supply.* (Draft Finding 8.1.)

Using your figures for the additional cost of desalination to ensure security of supply, and assuming a current combined population of 6.5 million for Melbourne and Perth, the additional cost per person over the 20 years calculates to between 46 and 62 cents per week. These figures would be even less if we deducted the actual costs associated with implementing and enforcing water restrictions.

All consumers are familiar with the concept of insurance. We argue that this is a small price to pay to ensure security of supply and is consistent with the findings of your Draft Report that consumers should have this option - which is only available with desalination.

Summary

You have concluded in your Draft Findings:

> *The primary objective of the sector is to provide water, wastewater and stormwater services in an economically efficient manner so as to maximise net benefits to the community.* (Page XLIII.)

It is noteworthy that this finding is consistent with the National Urban Water Planning Principles quoted on page 103 of your Draft Report except for the fact that you have omitted the need to reduce system reliability risks:

> *Selection of options for the portfolio should be made through a robust and transparent comparison of all demand and supply options, examining the social, environmental and economic costs and benefits and taking into account the specific*

> *water system characteristics. The aim is to optimise the economic, social and environmental outcomes and* ***reduce system reliability risks****, recognising that in most cases there is no one option that will provide a total solution. Readiness options should also be identified as part of contingency planning.* (Page 103.)

System reliability risks cannot realistically be reduced without desalination, which should be considered a legitimate component of the portfolio of options for integrated water management. Desalination actually represents the only new source of water for the urban water cycle. Desalination will become increasingly important in Australia with predicted urban growth over the next 50 -100 years (which is the expected design life of a desalination plant).

According to the International Desalination Association, there are 15,000 desalination plants worldwide delivering 65 GL per day. The capacity is increasing by 10% every year. More than 300 million people in 150 nations already depend on desalination for their water supplies, and in WA, Perth is already reliant on desalination for 17% of its public water supply, with this figure expected to rise when the second plant comes online.

New research innovations by NCEDA members and partners will further reduce the start up and maintenance costs of desalination, lower energy requirements and reduce carbon emissions.

We believe that in the long term, decisions to build desalination capacity in Australia's capital cities will be widely recognised as strategic and prudent as they represent a genuine, reliable and safe source of new water for the urban water cycle.

Thank you once again for the opportunity to comment.

Yours sincerely,

Neil Palmer

Chief Executive Officer
National Centre of Excellence in Desalination Australia