



Recycled water re-use for CBD cooling towers: A strategy to minimise potable water use in city buildings

Recommendations

1. Immediately support the proposed extension of the Glenelg-City Pipeline.
2. Provide funding for the extension of the pipeline.
3. Establish a Working Group to clarify the route of the pipeline and resolve any technical issues.
4. Deliver a publicity campaign highlighting the benefits of the project.
5. Charge a water learning hub with raising awareness levels around issues of recycled water.

Support for these recommendations will assist the State Government in achieving the following targets in South Australia's Strategic Plan: T1.1, T1.10, T1.22, T3.7, T3.9, T3.10 and T3.11.

About the Property Council of Australia

The Property Council of Australia is the nation's chief advocate for the property investment, development and property services sector. It champions members' interests by engaging governments on key public policy issues, as well as creating a more informed and connected marketplace.

Our members help shape, build and finance our cities. These organisations have a long-term interest in the future of Australia's urban areas. They include the bulk of the State's investors in office towers, shopping centres, industrial parks, tourism accommodation and residential developments.

The South Australian Division represents members with interest in more than \$33 billion of property investment, of which, nearly \$5 billion is invested by superannuation funds in South Australian property. More than 500,000 South Australians now have a stake in these investments through their superannuation, life insurance, managed fund property trusts, syndicates and direct ownership investments.



Our proposal

The Property Council of Australia (SA Division) recognises that the property industry is in a unique position to improve the State's environmental performance. The Property Council has been examining opportunities arising from the proposed recycled water pipeline from the Glenelg treatment works to the Adelaide parklands for irrigation purposes.

The Property Council believes there is potential to extend this water supply into the CBD for use in cooling towers of commercial buildings. **There is some urgency attached to this proposal as supplying additional buildings could necessitate a larger diameter pipe than currently proposed.** Changing the pipe size would have minor fiscal and logistical impact on the project as it stands, especially when compared with the potential benefits.

It should be noted that this proposal holds national significance. The proposed use of highly treated waste water in cooling towers has not been investigated interstate, positioning South Australia as a pioneer in this field.

Background

The State and Federal Governments have committed to building a new recycled water supply pipeline from Glenelg to the Adelaide parklands to provide non-potable water for the irrigation purposes. The Property Council supports this initiative as amenable public space is crucial to the health of our community and the parklands are a key natural attribute of the city. The current proposal is to install a pipeline along ANZAC Highway and complete a ring around the city.

In an effort to reduce pressures on Adelaide's potable water supply it is intended to use highly treated waste water as the source water for this irrigation project.

The owners of the new SA Water Building in Victoria Square (VS1), in their endeavours to develop a water-efficient building, have already reached an agreement with SA Water to run an extension of the pipeline from the parklands to VS1.

The Property Council believes that this program can be easily and cheaply extended to include all commercial buildings. Conversations with SA Water and the South Australian Department of Health have indicated that this proposal is achievable. As noted earlier, a larger pipe size may be required to transfer the larger volumes of water needed. In addition, as ANZAC highway is a potential development corridor, the pipeline design should allow for other developments along the route to 'bolt on' to the recycled water supply. In any event it is less costly to over-engineer the pipe before it is installed than to replace it to meet increased demand in years to come.

Discussion

The Property Council has held extensive discussions with SA Water and the South Australian Department of Health and has determined that significant savings of potable water can be made by extending the proposed pipeline into the CBD and running supplies into the cooling towers of major buildings.

Initial preliminary calculations have revealed that running recycled water into commercial building cooling towers could **save in the realm of one billion litres of potable water annually**, enough water to fill 4,000 Olympic sized swimming pools or alternatively supply the needs of all the flats, units and apartments in the City of Holdfast Bay council area (based on usage of 250 kilolitres per home; Australian Bureau of Statistics, Census Data, 2006 Community Profiles).

Cooling towers are a typical air conditioning component of buildings world-wide. And while the property industry in South Australia is extremely proactive in making new buildings as environmentally friendly as possible, there are limitations to greening the existing built environment. For example, while new buildings can be plumbed to run recycled water to toilets and cooling towers, this is more complex to implement in existing buildings.

Running a dedicated feed to an existing roof-mounted cooling tower is one immediately feasible means of using recycled water in existing buildings. As cooling towers are one of the biggest users of water in a commercial building, they present an effective use of this new water supply in a way that also contributes to economic development.

As mentioned earlier, this opportunity has already been identified by the owners of Adelaide's first – and Australia's highest design rated - Six Star Green Star Building, the VS1 building scheduled for completion in the final quarter of 2008. Recycled water from this supply will be used for the building's cooling towers and toilet flushing systems.

The Property Council, through its membership base, is aware of many new developments which could promptly connect into the proposed scheme if the opportunity existed. It is therefore imperative that the pipeline be extended throughout the core of the CBD.

Financial issues

The current proposed pipeline from Glenelg to Adelaide is expected to cost \$30 million and the additional treatment plant to be developed as part of the project another \$30 million. This is a significant outlay and it makes sense to maximise the State's environmental return for this investment. The Property Council estimates the government's additional contribution for the extension of the project through the CBD to be in the order of \$5 million. This is based on a generous costing of \$500 per metre cost for additional in-ground pipe work - an insignificant outlay when considering the benefit to the State and the River Murray in saving one billion litres of potable water a year.

Costs that might be associated with this project are:

- building alteration and maintenance costs;
- the cost of increasing the size of the pipe work already under consideration; and
- any requirements to expand the capacity of water treatment facilities.

Compared with these relatively low costs the benefits are significant:

- savings of up to one billion litres of potable water per year;
- substantially increased use of recycled water;
- bolstering South Australia's water security credentials;
- positive messaging to the public around water reuse and recycling; and
- asserting South Australia's leadership in innovative water security policy.

Implementation

The Property Council has discussed a possible route for the pipeline extension with the SA Water's Project Manager for the current scheme. This proposal runs the extension past a concentration of major commercial buildings to maximise usage of this recycled water. A draft map is attached but the Property Council would welcome the opportunity to discuss the practicalities of implementation with the Project team.

Timing

Although the Glenelg Pipeline scheme has not yet entered construction phase, it is imperative the issues of main pipe size and treatment plant capacity are reviewed urgently in the light of the proposition to extend the pipeline. The pipe size might need to be doubled or even tripled to account for significantly increased volumes of water. To do this at the planning stage is relatively inexpensive.

Enhancing public awareness of recycled water use

The successful achievement of this project would be a milestone in the South Australian Government's *Waterproofing Adelaide* strategy to secure a reliable potable water supply. The Property Council is also an Alliance Partner in South Australia's Strategic Plan and, as such, the South Australian Government and the Property Council should cooperate in developing and implementing a communications strategy that shows South Australia as an exemplar in major water-saving projects and simultaneously promotes the use of recycled water to the public.

Ongoing public education on these matters is vital. Practical initiatives such as these can contribute significantly to the increased usage of recycled water but public awareness of recycled water is very limited. In these times of extended drought it is imperative that these awareness levels are raised substantially to facilitate ever-greater uptake of recycled water.

The Property Council would therefore also advocate that the South Australian Government charge the "water learning hub" – currently in development – with increasing public understanding of the issues of recycled water and the importance of its use.

The hub should act as a single clearing house for policy ideas and messages around recycled water to ensure that the public receives clear and reliable messages that encourage the uptake of recycled water and water reuse technology.

Recommendations

1. Immediately support the proposed extension of the Glenelg-City Pipeline.
2. Provide funding for the extension of the pipeline.
3. Establish a Working Group to clarify the route of the pipeline and resolve any technical issues.
4. Deliver a publicity campaign highlighting the benefits of the project.
5. Charge a water learning hub with raising awareness levels around issues of recycled water.

Proposed Pipeline Extension

