SUBMISSION TO IPART -
SYDNEY WATER'S OPERATING LICENCE
BY
URBAN RAINWATER SYSTEMS PTY LTD
16 OCTOBER 2007

IPART invited submissions from interested parties on any matter related to Sydney Water's Operating Licence. Two matters are the subject of this submission:

(a) The use of rainwater tanks to replace 80gl of mains drinking water each year for a cost of $1.20/kl;

and,

(b) The removal of Government rebates for rainwater tanks when water supplied from rainwater tanks is cheaper than mains water supply.

1 Summary

With the use of four, low cost ($150), 670 litre rainwater tanks, any existing separate house in Sydney can obtain 80kl of rainwater a year, for 30 years, costing $1.20/kl.

The contribution to Sydney's drinking water supply when one million separate houses each obtains 80kl of rainwater a year, is 80gl, or 13% of Sydney's total storage capacity (600gl).

Sydney Water applied to IPART to increase the price of mains water to $1.62/kl in 2008-09 rising to $2.08/kL in 2011-12. Customers of Sydney Water are likely to select rainwater supply when it is cheaper than mains water supply.

Rebates for rainwater tanks are paid by the NSW Government from its Water Savings Fund. A rebate is provided because the Government considers the cost of rainwater supply to be greater than the cost of mains water supply. A rebate is not justified when rainwater supply is cheaper than mains water supply.

The NSW Government declines to consider that rainwater tanks are a cost-effective means to reduce mains drinking water consumption by 80gl each year.

2 Government Estimate of Rainwater Cost

The NSW Government considers that rainwater tanks are not a cost-effective water supply option for Sydney. In 2006, the Department of Water and Energy (DWE) estimated the cost of water from rainwater tanks to be $4/kl.

Sydney's Metropolitan Water Plan 2006 declared rainwater tanks to provide water that is "more expensive per litre of drinking water saved than many other measures to reduce demand and increase supply".

Advice received from the NSW Cabinet Office, on 10 January 2007, was that DWE's estimate of $4/kl was based on a hypothetical scenario without detailed quotes being sought from suppliers and service providers.

DWE advised that its hypothetical scenario related to retrofitting a 5kl rainwater tank to about 665,000 detached dwellings in Sydney. The $4/kl cost included the cost of:

- tank
- pressure pump

- installation
- plumbing
- ongoing maintenance of tank and pump
- electricity for pump
- disposal of tank at end of lifecycle

The technology to manufacture a low cost 670 litre rainwater tank was not available when DWE estimated the cost of rainwater supply. On 5 June 2007, Sydney Water and DWE were advised that such tanks could now be made in Sydney and enable low cost rainwater supply of $1.20/kl.

3

4 Detailed Costing

Sydney Water and DWE were supplied with the following costs:

- 670 litre rainwater tank: $150
- pressure pump: $150
- automatic switching valve: $200
- electricity: $3.50/year
- plumbing and installation: $1200
- ongoing maintenance (3 pumps): $450

5 Technology Breakthroughs

Two technology breakthroughs enable the above costs to be achieved.

The first is the design of a 670 litre rainwater tank for manufacture by plastic injection moulding. No rainwater tanks are currently made by this method. Production can start in Sydney immediately an injection moulding tool(s) is made, costing $1 million. The tool is used with an injection moulding machine. One injection moulding machine, with one tool, will produce 150,000 tanks each year. With eight machines/tools, every house in Sydney could be supplied with four tanks, within four years.

The second breakthrough is in the development of an automatic switching valve - used for alternating between rainwater supply and mains water supply - that can be used with any pressure pump in compliance with the Australian Plumbing Standard AS3500.1:2003. Pressure pumps can be purchased in bulk with the cost saving being passed on to customers.

6 Installation and Plumbing

Building regulations generally require all roofwater to be discharged into downpipes connected to the stormwater system. Typically, one downpipe is required for 60 square metres of roof area.

Rainwater can be collected from the entire roof area when each downpipe discharges water into its own dedicated rainwater tank.

A 670 litre tank is 150cm high and weighs 20kg. Such a tank is designed for confined and irregular spaces as occurs with many existing houses.

Tanks are interconnected and the rainwater is directed to a single point where it enters the dwelling. The 670 litre tank is bottom-draining, which means all water is removed.

The estimated yield of 80kl for an average Sydney house is conservatively based on the use of four 670 litre tanks collecting water from 175 square metres of roof area.

The yield estimate assumes 15% decline in mean annual rainfall and 85% collection efficiency. Estimated overflow into the stormwater system is 80kl.

An average household uses 150kl of water indoors each year or 411 litres a day.

Collecting rainfall from 175 square metres of house roof area yields 175 litres of water for every 1mm of rainfall. It takes 2.4mm rainfall to yield 411 litres.

When rainwater tanks are full, tank capacity becomes available at the rate of 411 litres per day, or the equivalent of 2.4mm rainfall.

Tank capacity is maximised when an automatic switching valve is used to access tank water immediately it becomes available as a result of rainfall. Continuity of supply is achieved by automatically switching to mains when tanks are empty.

Cost per kilolitre is obtained by dividing total cost over 30 years ($2975) by total yield over 30 years (2459kl).

The cost of installing four 670 litre rainwater tanks, and plumbing the supply into the household plumbing system, is estimated to be $1200.

Transport costs are low, because the tanks nestle one inside the other to achieve a large payload. The lightweight tank can be easily installed by the homeowner, to further reduce costs.

NSW Government policy is that a person has the right to use rainwater for any use of their choice. Government policy was announced to the NSW Parliament on 16 September 2003, by the Hon Frank Sartor.

Government policy is that a person may plumb a rainwater tank into their household plumbing system so that it is shared between rainwater and mains water, providing the plumbing connection complies with AS3500.1:2003.

In 2004, under the draft BASIX Regulation, the NSW Government had proposed to require a 40 per cent reduction in “potable water consumption” for all new dwellings. The regulation was amended to require reduction in “mains potable water consumption” because the water that falls on a person’s roof in NSW is the property of that person.

BASIX does not mandate the use of rainwater. BASIX requires that the conditions of consent nominated on an individual BASIX certificate be met. These conditions are chosen by each applicant to meet the required target score for the water section of their application on their individual BASIX certificate. A rainwater tank is one of the options available. What this rainwater tank is used for is also at the discretion of the applicant.

Section 14.3.1.1 of the NSW Code of Practice Plumbing and Drainage stipulates:

When connection to a rainwater tank forms a commitment within a BASIX certificate, BASIX can require a connection to the following (if nominated)

- all toilets in the development
- the cold water tap that supplies each washing machine in the development
- all other indoor cold water taps in the development
- at least one outdoor tap in the development, and
- all hot water systems in the development

7 Ownership of Rainwater

NSW Government policy is that “the water that falls on a person’s roof is considered the property of that person.” The Government’s policy was provided by the ALP Information Office on 20 March 2007, on behalf of the Premier, Hon M Iemma MP, in reply to a question put to the Premier on 14 March 2007 “Do you know who owns water that falls on a person’s roof in NSW?”

Government policy is consistent with Section 392 of the NSW Water Management Act 2000, which states “the rights to the control, use and flow of all water occurring naturally on or below the surface of the ground, are the State’s water rights.”

A person’s roof is not the surface of the ground in NSW. Consequently, no rights to the water that falls on a person’s roof are vested in the State in NSW.

However, NSW Government policy is potentially contradicted by Clause 2 of the National Water Initiative Agreement (NWIA), that states “water in Australia is vested in Governments.”

Clause 2 is interpreted by the Federal Government to mean that “all” water in NSW is vested in the State. The Minister for Water Utilities, Hon Nathan Rees, was asked to confirm that Clause 2 of the NWIA does not apply to water that falls on a person’s roof in NSW.

It is noted that the Victorian Government confirms that Clause 2 does not mean that “all” water is vested in Governments. Victorian Government policy is that the water that falls on a person’s roof in Victoria is the property of that person.

Federal Government policy is that the NSW Government has the legal right to impose an “entitlement regime” on a person’s use of a rainwater tank. Imposition of an “entitlement regime” would, obviously, increase the cost of rainwater per kilolitre of yield.

Minister Rees was asked to confirm that the State has no legal right to impose an entitlement regime on a person’s use of a rainwater tank under Clause 2 of the NWIA, or under any other instrument.

8 Rebate on Rainwater Tanks

BASIX is a performance-based requirement to reduce mains drinking water consumption of new buildings in NSW. Rebates for rainwater tanks do not apply for purchases made in compliance with a BASIX certificate.

Like BASIX, the NSW Government’s rainwater tank rebate program supports a policy of reducing mains drinking water consumption. It is a sound policy approach to achieve the outcome without the rebate.

9 Voluntary Use of Rainwater

The substitution of rainwater for mains water cannot be mandated.

Property owners are more likely to want to install rainwater tanks when they are convinced that there is a substantial cost saving to be made.

Sydney Water, or Local Councils, are able to bulk-purchase rainwater harvesting systems and pass on savings to customers.

Commercial risk is eliminated when systems are pre-ordered by customers.

A precedent exists whereby Local Councils provide ratepayers with low cost “wheelie bins” for their mandatory garbage collection service.

10 Policy Objective

BASIX demonstrates policy support by the NSW Government for every dwelling in NSW having its own rainwater supply system.

Government policy is that the cost of rainwater supply is a building cost. When a rainwater supply system is installed in an existing house at point of sale, the cost is included as a building cost.

Since houses change ownership on average every seven years, there is considerable opportunity to incorporate rainwater supply into all existing houses.

11 Conclusion

The estimate for the cost of water from rainwater tanks contained in the Metropolitan Water Plan for Sydney 2006 was based on a hypothetical scenario without detailed quotes being sought from suppliers and service providers.

This submission demonstrates in practical terms how every separate house in Sydney can have its own rainwater supply system installed within four years, to yield 80kl a year for 30 years, costing $1.20/kl, and contributing 80gl, equivalent to increasing Sydney’s drinking water storage by 13%.

Sydney Water and DWE are able to consider the proposition at any time.

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