

Water in the Lower Hunter



Planning our water future

Hunter Water is planning for our future now to ensure our region has a sustainable and resilient water system that can adapt and respond to change. We need to consider new sources of water (supply) and find new ways to reduce the water we all use (demand). This series of information sheets provide an overview of the potential water supply and demand option types we're discussing with our community as we plan our water future together.

Supply option: Purified recycled water for drinking

What is it and how does it work?

In many places around the world, water is recycled by purifying or treating wastewater to a level that makes it safe and suitable to go back into the drinking water supply. This is referred to as purified recycled water (PRW) and is subject to multiple stages of treatment and monitoring.

Firstly, the wastewater is treated at an existing plant. It then goes through a highly refined treatment process at a new, more advanced treatment plant. This purifies the water by removing any microbes or extremely small particles, such as viruses and chemicals, in a similar process to desalination.

After being stored long term in an existing Hunter Water dam or other storage it's treated again through the normal treatment process for drinking water at an existing water treatment plant. This results in clean drinking water that meets the strict standards under the Australian Drinking Water Guidelines.

What is currently in place in the Lower Hunter?

There are currently 15 recycled water schemes in the Lower Hunter which produce a total of around 6 billion litres of recycled water each year for non-drinking

purposes. There are no PRW schemes operating in the Lower Hunter. However, there are 35 operating PRW schemes throughout the world, including Perth, Western Australia.

Things we need to consider

Drinking purified recycled water is a new technology for the Lower Hunter and there will likely be strong community interest in the process, reliability and safety.

Purified recycled water for drinking is a reliable rainfall-independent supply of water.

PRW provides environmental benefits by reducing the volume of treated wastewater released to waterways.

Due to advanced treatment requirements and relatively high energy use, the cost to build and operate PRW schemes is similar to desalination.

How we're considering this option for the Lower Hunter Water Security Plan

We're investigating a range of PRW schemes at varying scales. The schemes involve sending highly treated recycled water to Grahamstown Dam for storage, followed by further treatment at the existing Grahamstown Water Treatment Plant and supply to Hunter Water customers. The scheme could be scaled up over time as required.

We have started to speak with our community to learn more about their thoughts on the use of PRW to supplement water supplies and will continue to do so into the future.

A long term PRW education and engagement program will be implemented with the community. Actions in the short term will be limited to community engagement and establishing a demonstration plant.

See **key results table** over page.



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Key results table

The table below provides further detail about how this option is being considered in the plan.

	Small scheme	Medium scheme	Large scheme
Additional sustainable supply	3 billion litres per year	13 billion litres per year	35 billion litres per year
Indicative cost to build	\$50 million	\$210 million	\$530 million
Indicative cost to operate	\$2 million per year	\$7 million per year	\$17 million per year
Comparative water supply cost*	\$1.77 per kilolitre	\$1.53 per kilolitre	\$1.55 per kilolitre
Reliability and resilience	Does not rely on rainfall which improves the reliability of our system Ensures an ongoing water supply in long and severe droughts Can be adaptable to upgrade over time to meet growth requirements		
Environmental impacts	High energy use and associated greenhouse gas emissions		
Cultural and social impacts	Community interest in process, reliability and safety		
Timeframe for delivery	Around 10 years including community engagement and demonstration plant phase		

* The comparative water supply cost is an annualised cost that allows for comparison of options of varying scales and timeframes. The measure incorporates the whole-of-life cost to build and operate the option and the additional sustainable water supply the option provides. The measure does not assess the increment of demand served or the level of ongoing supply in a long and severe drought. Costs are indicative of 2020/21 dollars.