Planning our water future

Central Coast Council 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 are discussing with our community as we plan our water future together.

love water use it wisely

Central Coast Council

Supply option: **Purified recycled water**

What is it and how does it work?

All water is recycled in nature as part of the natural water cycle. Technology now allows us to speed up this process to provide clean and safe drinking water. 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 water 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 and includes advanced disinfection processes.

The highly treated purified recycled water could then be piped to Wyong River and released upstream of the weir for subsequent extraction or be transferred directly to Mardi Dam. This water would mix with other water extracted from the rivers and creeks before passing through the existing water treatment cycle. This results in clean drinking water that meets the strict standards under the Australian Drinking Water Guidelines.

What is currently in place on the Central Coast?

There are currently no existing PRW schemes in New South Wales. However, there are over 35 operating PRW schemes throughout the world, including Perth, Western Australia.

Hunter Water is also considering PRW as part of its Lower Hunter Water Security Plan.

Things we need to consider

Purified recycled water for drinking would be a new technology for the Central Coast and there would likely be strong community interest in the process, its reliability and safety.

Purified recycled water for drinking is a reliable rainfall independent supply of water and provides environmental benefits by reducing the volume of treated wastewater released to waterways.

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

How we are considering this option for the Central Coast Water Security Plan

We're investigating a PRW scheme that involves sending highly treated recycled water to mix with water extracted from Wyong River, and stored in Mardi Dam. The water would then be treated again at the existing Mardi Water treatment plant, then supplied to Central Coast customers. The scheme could be scaled up over time as required.

We are starting 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.

To keep this option on the table for the future, a long-term PRW education and engagement program would be implemented with the community. Actions in the short term would be limited to community engagement and education while working with our neighbouring water authorities to understand their plans for PRW.

See key results table for further detail about how this option is being considered in the plan.

Key results

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

	Category	Additional information
Potential additional water available	Medium	This option would yield around 6ML/day of water, which could be expanded to 9ML/day over time. Dependent on the flow in the relevant treatment plants and their proximity to a suitable receiving dam or reservoir.
Reliability and resilience	High	Improves the reliability of our system as it does not rely on rainfall. Ensures an ongoing water supply in long and severe droughts. Can be adaptable to upgrade over time to meet growth requirements.

	Impact	Cost	Additional information
Indicative cost to build	Medium	$48 million	Involves the construction of additional advanced treatment and pipeline assets.
Indicative cost to operate	Low	$1.8 million per year	Ongoing costs with chemicals, energy and maintenance
Levelised cost	Medium	$3.49/kL	

	Impact	Additional information
Environmental impacts	Low	High energy use. Options exist for offsets for greenhouse gas emissions to reduce impact.
Cultural and social impacts	Low	Community interest in process, reliability and safety.
Timeframe for delivery	High	Approximately 10 years including community engagement and demonstration plant phase.

Some information contained in this fact sheet was sourced from Hunter Water Corporation