

Toukley Desalination Water Treatment Plant Project

Introduction

Council is delivering the Toukley Desalination Water Treatment Plant project as part of our commitment to be 'plan ready' to deliver safe and secure drinking water in response a potential severe and prolonged drought in the future.

Desalination forms an important part of the Central Coast Water Security Plan (June 2023), which is critical to the long-term water security of the region. It also forms an important part of Council's Drought Management Plan as one potential drought response measure to be implemented in a future severe and prolonged drought.

What is the Toukley Desalination Water Treatment Plant project?

What will the project deliver?

The objective is to undertake site selection for a sea water intake structure and transfer pumpstation, before developing a concept design and obtaining planning approvals for a 30 megalitre per day (ML/D) desalination scheme.

The suitability of the proposed site in Toukley will be supported by physical studies and investigations, including geotechnical work and sea water sampling that will be undertaken.

Notedly, no construction is occurring as part of this project.

What are the benefits of the project?

The Toukley Desalination Water Treatment Plant project will ultimately ensure we provide a secure water supply, reduce reliance on traditional rainfall-dependant water sources, and support regional growth.

By being 'plan ready' ensures we can manage future droughts in a time and cost-efficient manner. This work allows to better understand the time and cost to deliver a future desalination plant and ensure that we can responsibly delay triggering more expensive detail designed and construction activities until a later stage during a potential future drought.

What are the upcoming investigative works?

The next stage of the Toukley Desalination Water Treatment Plant project will be to undertake environmental investigations. We will also develop suitable concept designs to seek a new planning approval for the future construction of the plant.

To kickstart this next stage, we will be conducting a series of investigative works, including but not limited to geotechnical drilling and seawater sampling. These activities

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are essential for understanding the site conditions and ensuring the project's successful implementation.

While these works may cause some minor disruptions, we are committed to minimising any inconvenience and keeping the community well-informed throughout the process.

How will the community be affected by the project?

There may be some minor disruptions during the initial investigative works, including but not limited to geotechnical investigations and seawater sampling.

We will keep the community well-informed and work closely with our consultants and contractors to minimise any disruptions to community.

How long will the project take to complete?

The current planning project, including intake site selection, concept design and Environmental Impact Statement (EIS), is expected to be completed within three years from the initial investigative works through to obtaining planning approval for the Toukley Desalination Water Treatment Plant.

Why is a new planning approval required for the Toukley Desalination Water Treatment Plant?

Council had previously obtained a planning approval for a 20 ML/D drought response desalination scheme as part of responding to the Millennium Drought. The development of the Central Coast Water Security Plan identified that the previous approved scheme required a different seawater intake location as well as a larger scale plant.

Council also investigated modifying the previous approval in consultation with the NSW Department of Planning, Housing and Infrastructure. This review concluded that a new development approval would be more appropriate in consideration of the proposed changes to the desalination scheme and current planning approval pathways for State Significant Infrastructure.

We understand the scale, complexity and strategic importance of this project and are committed to ensuring our planning and investigations are in line with current and best available information.

Why is Council delivering this project?

What actions are there in the Central Coast Water Security Plan for desalination?

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The Toukley Desalination Water Treatment Plant is also being considered as a long-term supply option. We have proposed to construct the desalination plant adjacent to the existing Toukley Wastewater Treatment Plant.

This site was shortlisted based on a range of criteria, including site availability, proximity to Council's water distribution network, power supply, access to seawater for raw water intake and brine discharge, and potential environmental and social impacts.

The proposed seawater intake structure type is being changed from a horizontal collector well system initially proposed under the dunes at Lakes Beach, to a conventional direct ocean intake structure located off the coast somewhere between Noraville and Magenta. The exact location of this intake structure will be determined in the next stage of the project.

The most appropriate size of the desalination plant being considered is up to 30 ML/D as both a long-term supply option, and a drought response measure.

[Is there a difference between a drought response desalination plant and the future desalination plant described in the Central Coast Water Security Plan?](#)

There is little difference for the Central Coast as the preferred location, scale and technology is the same. While we forecast when long-term

supply measures (including desalination) would likely need to be implemented due to growth in demand, we also recognise a severe and prolonged drought could trigger the construction of a desalination plant earlier (drought response desalination) to manage the risk of running out of water.

The design of any desalination plant would ensure that the asset could be integrated into Council's broader water supply network for future usage when dam levels drop in the future.

[What does it mean to be 'plan ready'?](#)

Due to the uncertainties in droughts, climate change, and population growth, we need to be 'plan ready' to implement a drought response desalination plant as part of our Drought Management Plan.

This means we would have a feasible concept design prepared, with the relevant planning approvals in place as these can take many years to obtain. We will also understand the time required to deliver the remaining project phases so we can responsibly delay those during future droughts to minimise costs to our customers, while managing the risks of running out of water.

This information also allows us to better understand the cost of delivering a

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desalination plant and informs future funding considerations.

Why are we doing this project now when our dam levels are high?

To ensure a sufficient and resilient water supply for the region into the future, we are planning to adapt to future uncertainties. This project allows Council to better understand the time and cost required to construct a desalination plant at Toukley if required in response to a future severe and prolonged drought. This means when we are in drought, we would still have access to a safe and secure source of water.

We need to do this planning work now, to ensure that we can responsibly delay triggering more expensive detailed design and construction activities until a later stage during a potential future drought.

Desalination on the Central Coast

What is desalination?

Desalination is the process of removing salts from saline or brackish water to create clean, safe water for drinking.

A process called 'reverse osmosis' is commonly used. This process involves pushing saltwater

through a membrane (a barrier with tiny holes) to remove the salt and mineral content.

The size of a desalination plant can range from a small unit, the size of a shipping container, to a large treatment plant that can provide hundreds of millions of litres of water a day.

How are the brine and other by-products of desalination managed?

Brine and other liquid stream by-products would be disposed of via the existing Toukley sewerage scheme ocean outfall which transfers effluent from five wastewater treatment plants to the ocean. This would be in line with the required environmental impact assessments and ongoing monitoring to avoid adverse impacts to the environment. This had been assessed and approved by the state government previously for the Council's potential Toukley 20ML/D drought response desalination scheme.

How do we use desalination currently?

We don't have a desalination plant in the Central Coast region. Development consent for a 20 ML/D drought response plant was previously obtained from the State Government and activated in response to the Millennium Drought. Subsequent recovery of the region's water storages allowed Council to defer the construction of the plant.

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What are the benefits of a desalination plant on the Central Coast?

Desalination plants provides a climate-independent water source, enhancing our water supply resilience against droughts, climate change, and increasing demand due to population growth.

As the Central Coast's population grows, so does the demand for water. A permanent desalination plant at Toukley would add a new climate-independent water source to the Central Coast water supply system. This would provide a very reliable source of supply that is not dependant on future rainfall.

The plant would improve the diversity of the water supply system and the resilience of the system to respond to shocks including drought, water quality issues in our catchments (including algae) and other major asset outages.

Related resources

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