Evaporative air cooler water efficiency study

This research will measure the potential water savings achieved by servicing and maintaining fixed evaporative air cooler units.

During hot weather, evaporative air-conditioners have the potential to consume a lot of water, especially when they are not maintained appropriately. During periods of drought, this use can acutely affect the demand on limited water resources.

Funded by the NSW Department of Planning and Environment, this study partners with:

- Tamworth Regional Council
- Taggle, Australia's leading supplier of Smart Water Solutions for local and regional councils and water utilities. Taggle will supply the required flow meters and equipment to transmit flow data from the customer evaporative air cooler directly to the researchers.
- The Institute for Sustainable Futures, at the University of Technology Sydney, a research organisation that collaborates to develop sustainable and resilient water management approaches. It will be analysing the data from this study to determine the water savings potential of evaporative air coolers.

The study is being conducted across 100 properties in the council area to get a representative picture of the water demand from evaporative air coolers across NSW.

Study details

The study involves:

1. Installing inline flow meters and data transmitters onto each of the recruited evaporative air coolers. The council will contract a service professional to undertake this installation.
2. Collecting baseline data during the initial summer months of 2023 - 2024 to understand how much water is currently being used on average by evaporative air coolers.
3. A specialised evaporative air cooler contractor to optimise each cooler by adjusting the bleed rate and cleaning the evaporation pads. This will take place during winter 2024.
4. Water consumption being monitored for an additional 6 months during the summer of 2024 - 2025.
5. Collecting data to be analysed to determine the potential water savings of evaporative air coolers.

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Study requirements

Eligible households

Households, such as yours, that have an existing fixed evaporative air cooler installed and are already fitted with household digital Automated Meter Reading customer flow meters are considered eligible.

Property access

Access will be required to your property on 2 occasions:

1. A plumber will set up a flow meter and data transmission equipment on the evaporative air conditioner at the beginning of the study.
2. A plumber will perform a tune-up on the evaporative air conditioner after an initial control period.

Data collection

We will collect anonymous data from participants' households for both the total water consumed (taken from the existing household flow meter) and the water used directly by the evaporative air cooler (by an installed inline evaporative air cooler flow meter and data transmitter).

A survey sheet will also be provided to you at the time of the flow meter installation. This will ask for details such as the age and condition of the evaporative air cooler, model/brand, any reported maintenance over the past 5 years, general household demographics, any significant large water using practices, for example pool filling or regular irrigation. It will take approximately 10 minutes to complete the survey.

Participation is voluntary and can be withdrawn at any time without providing a reason.

How data will be used

The following are examples of how the household and evaporative air cooler data will be analysed in the study:

- volume of useful evaporative water and wasted water
- average daily demand of the evaporative air cooler pre / post optimisation
- percentage of the evaporative air cooler demand against the total water consumption of each participant

- peak day flow will be determined and expressed as a percentage of the average daily evaporative air cooler demand, and the percentage of the peak daily demand of participants' homes.

Frequently asked questions

What will the tune up of the evaporative air cooler involve?

The tune up will involve the full maintenance check of the evaporative air cooler including:

- cleaning the cooler pads
- cleaning the water tank
- removing any calcium deposits
- inspecting electrical components and motor belt.

Will being involved in this study cost me anything?

No, the installation of the evaporative air cooler flow meter, data transmission and the tune up by a service professional will be provided free of charge.

Will my personal data be used in the study?

No, the researchers will not have access to your personal details (name, address etc) when analysing the data. They will receive an anonymised water use data associated with a randomly generated property ID.

What do I get out of this study?

The study aims to see whether evaporative air coolers are operating efficiently. If your cooler's efficiency is improved by the free tune-up, your household will be using less water to cool your home. This will reduce the associated water bills attributed to cooling requirements of your home.

More information

If you have any questions, you can contact Jashvi Mehta, Project Officer by emailing Jashvi.Mehta@dpie.nsw.gov.au or calling 0433 926 603.