

Using data to improve regional water efficiency

How can we better use data to help Local Water Utilities (LWU) overcome economies of scale and capacity limitations and harness the significant opportunities for water efficiency across regional NSW?

The LWUs across NSW have diverse characteristics including varying supply security, water demands, climate zones, customer connections, customer types, and financial capacities.

There are currently limited regulatory requirements and consistent drivers for LWUs to undertake ongoing water efficiency. While water shortages tend to highlight the importance of water efficiency in managing finite water resources, the greatest value of water efficiency initiatives comes from sustained effort and investment over time.

Barriers to implementing water efficiency programs across NSW:

- Programs are often implemented sporadically, usually in times of extreme shortage
- Lack of regulatory requirements for ongoing water efficiency (e.g. BASIX targets for new buildings and renovations vary across the state)
- Limited data to identify potential programs, particularly non-residential data
- Constrained resources to implement programs effectively

Research approach explained

ISF undertook an in-depth analysis of publicly available performance management data, 300 previous programs and 150 emerging technologies, to investigate new ways of overcoming the barriers to implementing water efficiency programs across NSW. A bespoke model, the System Water Efficiency Estimation Tool (SWEET), was developed to evaluate the water saving potential of LWUs and identify a broad range of water efficiency opportunities across the state. Finally, we identified a series of recommendations that NSW can implement to lay the foundation for effective water efficiency initiatives and directly target specific water savings outcomes.

What we found:

About LWU :

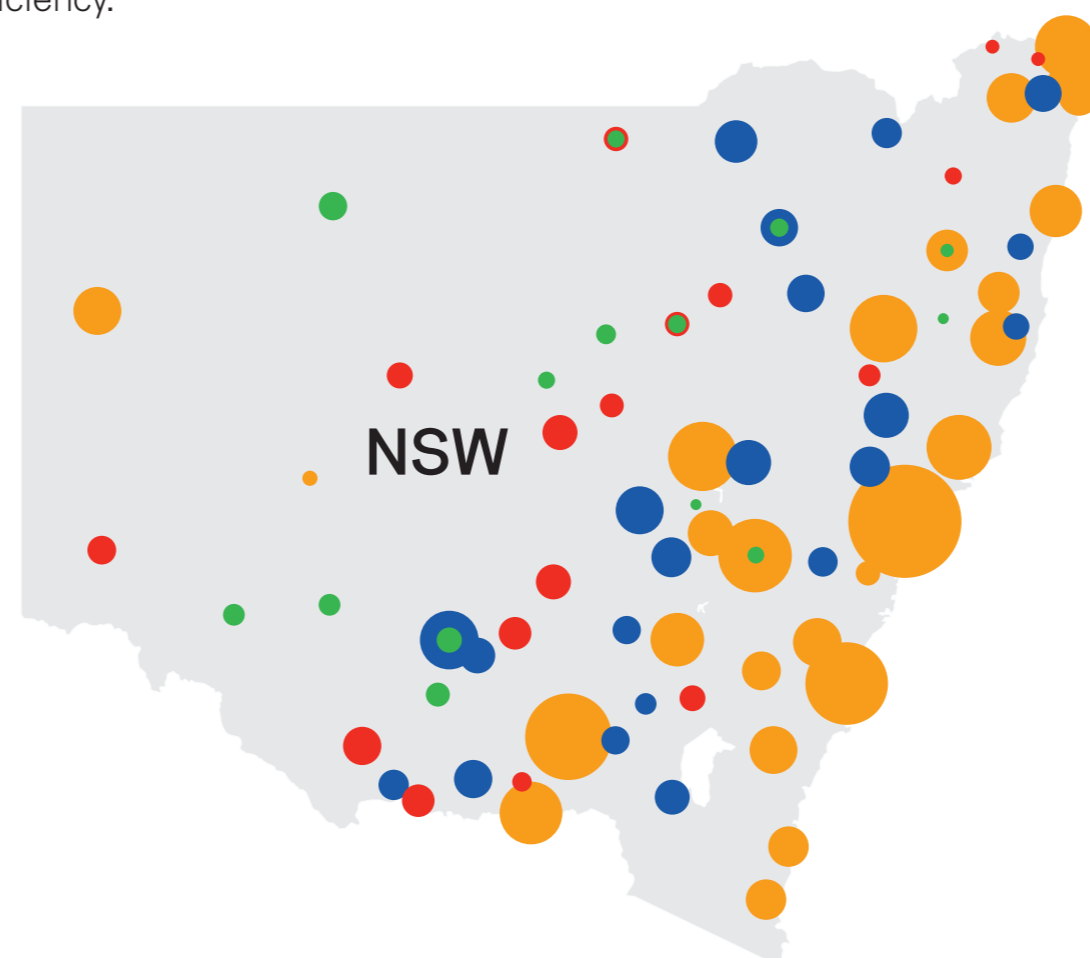
- Research, development and testing of novel concepts has generally been conducted by larger utilities.
- Regional utilities can have demand drivers that are not encountered in major urban centres.
- Most of the LWUs with the highest residential demand per capita were smaller utilities.
- The smaller scale of many of the LWUs create challenges in achieving economies of scale for water efficiency.

Utility size

- Small
- Medium
- Large
- Major

Utility water demand (ML)

- 0
- 10,000
- 20,000
- 28,332

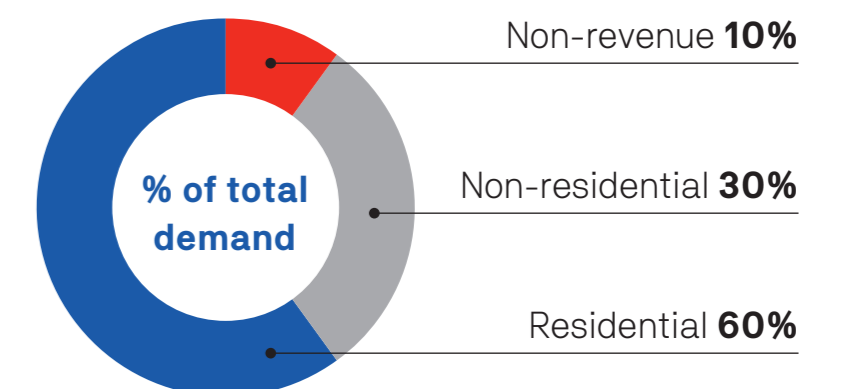


About savings:

- Significant opportunities for water efficiency improvements exist across NSW.
- SWEET estimated a savings potential of 9.7 GL/yr (13%) from a selection of 21 LWUs through various residential, non-residential and leakage detection programs at unit costs lower than the water price in the LWUs.
- Combining regulatory and incentive measures could support water security and positively engage customers. For example, permanent water savings measures can require large customers to develop water savings plans and look for low cost, fast payback water savings opportunities. Such measures combined with revolving funds and technical support, minimise the impact on these large customers.

About programs:

- A limited number of utilities (< 20%) report implementing any efficiency programs, and are much less likely to deliver any in areas with the highest levels of residential demand per capita.
- There is a high level of variation in non-residential demand across utilities (between 10 - 60% of total demand).
- Current programs often focus on easy to implement programs like residential rebates, education and leakage.
- Focusing only on residential demand ignores efficiency potential in other high demand areas.



Recommendations for NSW

- 1. Build scale of programs across the state**
Alternate delivery mechanisms such as resourcing collaborative platforms for planning and delivering water efficiency programs at regional or state scales may help to overcome scale challenges.
- 2. State-wide support of data analytics:**
Particularly in the non-residential sector and for monitoring and evaluating programs, together with mechanisms to facilitate collaboration for pilots and program delivery would help to overcome economies of scale and capacity limitations.



- 3. General building of capacity** (within government departments and utilities): Collaborative pilots and data sharing is required to overcome capacity constraints for research and development to investigate end uses and users that are different to those found in larger metropolitan utilities.
- 4. Account for significant diversity in demand profiles:** Saving opportunities exist across all water demands. There is particularly a large opportunity for investment in diverse water efficiency programs across non-residential and non-revenue demand areas.

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