

BASIX Performance Monitoring

Interim report - Verified water savings for 2007-08

The first BASIX Performance Monitoring study has found that BASIX dwellings are achieving the water saving target, with average measured water savings of 40.5%.

About BASIX monitoring

The *BASIX Ongoing Monitoring Program* was established to evaluate and report on the outcomes of the BASIX policy, which mandates water, energy and thermal comfort targets for residential developments in NSW.

The *Outcomes Report* series evaluates BASIX certificates and identifies the commitments made to achieve the targets. To date the *2004-2005 Outcomes Report* (representing the first year of implementation and covering Sydney only) and the *Single Dwellings Outcomes 2005-2008 Report* have been finalised and are available on-line (<http://www.basix.nsw.gov.au/information/monitoring.jsp>).

In order to verify that the savings committed to in the BASIX certificates are being translated into actual savings within the home, the *BASIX Performance Monitoring Study* measures the consumption of water and energy in a representative sample of constructed BASIX dwellings. This data is compared to the savings calculated on the BASIX certificate and the results are used to evaluate the effectiveness of BASIX in meeting its targets for reductions in potable water consumption and greenhouse gas emissions.

About the project/background

To undertake the first stage of this verification project NSW Department of Planning worked with Sydney Water on an in-depth water monitoring study. This monitoring includes analysis of actual water consumption for a sample of verified BASIX-affected occupied single dwellings, located within the Sydney Water area of operations.

To complete this project Sydney Water and DoP established a data sharing agreement which allowed the Department to provide the BASIX benchmark, Target and Water Score information for each dwelling. Sydney Water linked this BASIX data to quarterly water consumption information based on the address provided on the BASIX certificate. This allowed a comparison to be made between the predicted water savings of the dwelling (based on the BASIX target) and the actual water consumption levels.

Findings

Sydney Water has prepared the *BASIX Monitoring Report: Water Savings for 2007-8* to present the results from this first stage of performance monitoring.

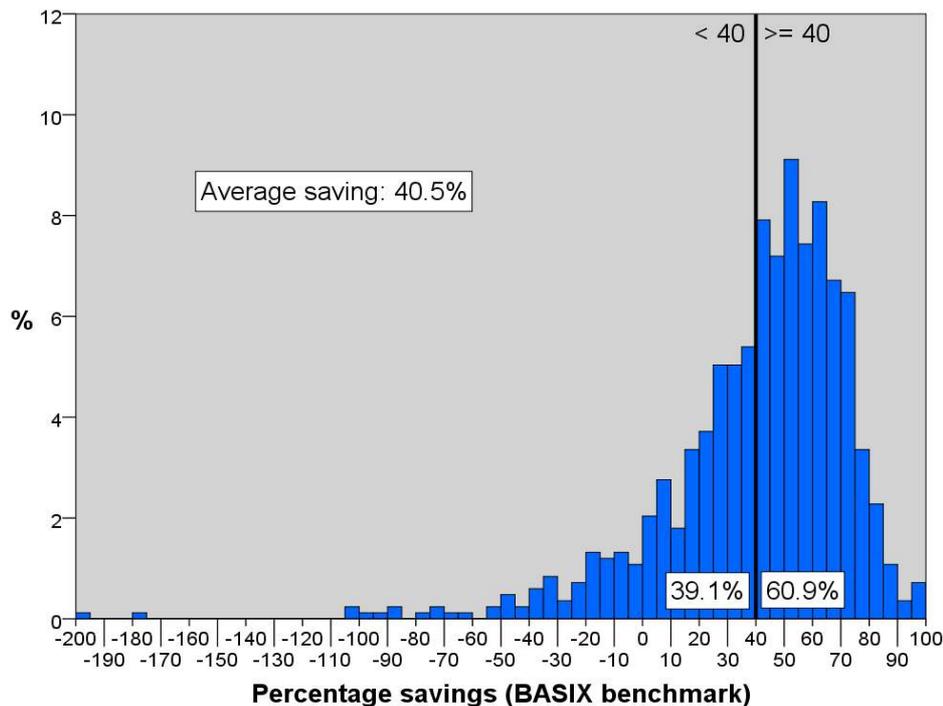
A sample of 834 BASIX-affected occupied homes was monitored for the period of July 2007 – June 2008. Using the BASIX assumption of dwelling occupancy, the average per dwelling BASIX benchmark consumption for the sample was 324 kL per year¹. From this benchmark the BASIX 40% reduction target results in an average BASIX-predicted consumption of 195 kL/year for the analysed sample. The monitoring results indicate that over the 12 month reporting period the sample of BASIX dwellings achieved the BASIX water target of 40% savings relative the BASIX benchmark, with an average metered potable water consumption of 192 kL/year.

Over 60% of the sample saved more than the BASIX Target and across the sample there was an average saving of 40.5%.

¹ Based on annual baseline consumption for a 366-day year, as 2008 was a leap year (February 2008 contained 29 days).



Figure 1: Distribution of actual percentage potable water savings relative to BASIX benchmark



While the data shows a spread of performance from dwellings using far less water than predicted by the BASIX target, to those using more, the majority of dwellings (61%) performed at or better than the BASIX target and the average saving over all dwellings was 40.5%.

Other analysis presented

To further test the outcomes of BASIX, actual water consumption was also compared to:

- savings based on **actual occupancy**, using the results of the telephone survey in place of the occupancy estimated by BASIX using the methodology described above,
- savings based on **predicted performance**, i.e. *the BASIX Water Score* (the dwelling's estimated percentage potable water savings relative to the BASIX benchmark as estimated by the BASIX tool), and
- BASIX Water Scores reproduced for the sample using the **actual rainfall and evaporation data** from the 2007-2008 period.

These modified results continued to indicate that BASIX-affected occupied single dwellings located within the Sydney Water area of operations are achieving targeted water savings of 40%.

Future work

As part of the on-going verification study Sydney Water and DoP will conduct on-site verification of a sample of BASIX-occupied dwellings to identify whether the savings potential of BASIX identified in the water consumption patterns is being limited by difficulties experienced in the installation, operation and use of the BASIX compliance measures. This project will be carried out during 2009.

A similar verification study is currently being undertaken for the energy target with Energy Australia.

Conclusion

The analysed sample achieved an average water saving of 40.5% from the BASIX benchmark, marginally higher than the target potable water reduction. Based on the results of the first verification project, improvements to the BASIX policy and calculations in the first two years of implementation appear to have resulted in higher certainty in achieving the long-term policy objectives. On-going monitoring is critical in understanding the long-term policy achievements and also the impact of water restrictions, weather variability, dwelling age and BASIX compliance measures.

