



# Achieving the Green Dream: Predicted vs. Actual

## Research Key Findings

### Executive Summary

Since 2003, Green Star has been used to assess and rate the sustainability of office buildings against the nine environmental impact categories of Management, Indoor Environment, Quality, Energy, Transport, Water, Materials, Land Use and Ecology, Emissions and Innovation.

In assessing buildings for Energy and Water, the Green Star – Office rating tool uses the computer modelling data provided by project teams in order to predict how a building will perform in operation.

In 2012, the GBCA conducted a study of 70 Green Star-certified offices to test the relationship between the predictive energy modelling results for greenhouse gas emissions and the actual greenhouse gas emissions performance of the certified buildings in operation (as defined by their actual NABERS Energy certificate).

An additional analysis of 34 buildings within the sample was conducted in order to test the correlation between potable water operational performance (as defined by actual NABERS Water ratings) and greenhouse gas emissions performance in operation (as defined by actual NABERS Energy ratings).

A summary of the key findings of the study is provided overleaf.

For more information on research methodology and to download the full *Achieving the Green Dream – Predicted vs Actual* report, please visit [www.gbca.org.au](http://www.gbca.org.au) and go to the Resources section.



## Key findings

- The majority of Green Star – Office certified buildings (57%) achieved (40%) or exceeded (17%) the predicted NABERS Energy rating indicated by the original predictive energy modelling conducted.
- Of the 43% of buildings that did not achieve the predicted level of greenhouse gas performance (as represented by a predicted NABERS Energy rating), nearly two-thirds (18 out of 30) achieved a NABERS Energy rating that was within 1 star or less.
- Recent research suggests that this group of buildings is likely to achieve the modelled level of greenhouse gas performance if simple improvements to operational performance are implemented.
- In the case of Green Star-certified offices, a positive relationship exists between modelled and actual greenhouse gas performance; as predicted (modelled) greenhouse gas emissions performance increases, so too does actual greenhouse gas emissions performance.
- For Green Star-certified office buildings, the commonly held assumption that predictive modelling for greenhouse gas performance does not correspond to actual greenhouse gas emissions performance does not hold true in the majority of cases.
- In the case of Green Star-certified offices, a positive relationship exists between actual NABERS Energy results and actual NABERS Water results. This means that as NABERS Energy results increase, so too do NABERS Water results.
- For Green Star-certified office buildings, the commonly held assumption that increased levels of greenhouse gas efficiency are only achievable at the expense of potable water performance does not hold true in the majority of cases.