

## ART GALLERY OF NEW SOUTH WALES FINANCIAL REWARD FOR CHILLER UPGRADE



### Key Outcomes

Energy Conservation's Measurement and Verification (M&V) and certificate creation services enabled the Art Gallery of New South Wales to achieve:

- 💰 Funding of over \$100,000\* through the NSW Energy Savings Scheme
- 💰 Creation of more than 12,000 Energy Savings Certificates
- 💰 Annual savings of over 1,200 MWh, representing 15% of Gallery consumption
- 💰 Annual savings of more than \$140,000\* in electricity costs
- 💰 Reduction of 1,200 tonnes of annual CO<sub>2</sub> equivalent emissions.

\* Based on prices applicable at time of project

### Overview

The Art Gallery of NSW is Sydney's premier art gallery and holds a collection of Australian and international works valued at more than \$1 billion. With a floor area of 25,000 m<sup>2</sup> it is one of the largest galleries in Australia, attracting more than a million visitors each year. A consistent indoor temperature of 22°C ±1°C and the relative humidity of 55% ±5% is required to preserve the Gallery's irreplaceable collection. At the heart of the climate control system lies a chilled water system which runs around the clock to provide cooling and dehumidification of the indoor environment.

To ensure ongoing reliability of the chilled water system whilst reducing energy costs, the Gallery replaced two old rotary-screw fluid chillers with high-efficiency, variable speed, magnetic bearing centrifugal chillers and introduced further efficiency improvements for the cooling towers, water pumps and control systems.

### The Challenge

In accordance with the rules of the Energy Savings Scheme, the energy savings achieved needed to be accurately quantified using recognised measurement and verification principles.

The challenge was to design the most accurate but cost-effective method of measuring the performance of the upgraded system against that of the old system whilst accounting for variations in temperature and humidity. Our team of skilled M&V professionals qualified us as the right company for this complex project.

### Contact us

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### The Solution

**ENERGY CONSERVATION EXAMINED ELECTRICITY DATA, CLIMATE DATA AND VISITOR INFORMATION AND USED REGRESSION ANALYSIS IN THE DEVELOPMENT OF ENERGY MODELS.**

In addition, Energy Conservation monitored cooling efficiency by measuring chiller energy consumption, chilled water flow and temperatures for comparison of specific chiller performance before and after upgrade. EC then applied the International Performance Measurement and Verification Protocol (IPMVP) and successfully verified the accuracy of their energy models and the Gallery's significant energy savings.

Energy Conservation's appointment to the Office of Environment and Heritage's (OEH) Energy Efficiency Professional Services Panel provided access to government funding for the M&V study. Their accreditation as a certificate provider (ACP) under the ESS using the Project Impact Assessment with Measurement & Verification method enabled them to create and sell Energy Savings Certificates to provide the Gallery with funding to offset the cost of the chilled water system upgrade.

### Testimonial

*"We tendered for the M&V works through OEH. Energy Conservation's tender response was very good and fully captured the scope of works required. Energy Conservation were excellent to work with, answered all questions, visited site frequently and provided me constant updates on how the project was tracking. From day one Energy Conservation instilled confidence and delivered what they promised for this project. I would recommend EC to anyone seeking similar services".*

**Luke Simkins**  
Head Building Services, Art Gallery of NSW



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