

150 PROJECTS ROLLED INTO ONE

Hornsby Shire Council implements Australia's most comprehensive local government energy performance contract



CASE STUDY



**HORNSBY
SHIRE
COUNCIL**

NEW SOUTH WALES

As part of a commitment to the Cities for Climate Protection program back in 2001, Hornsby Shire Council has initiated a major program of works to improve energy and water efficiency.

In 2001 Hornsby Shire Council recognised the need to address the amount of greenhouse gas emissions which were being generated through Council activities. To do this, Council entered into an Energy Performance Contract (EPC) with Energy Conservation Systems.

An EPC is a convenient and streamlined way of implementing and financing renewable energy and energy efficiency upgrades whereby future energy savings pay for the cost of upgrades. A key feature of an EPC is that it delivers guaranteed savings.

The main aims of the EPC were to achieve guaranteed reductions in energy use and operating costs, and, most importantly, reductions in greenhouse gas emissions and improvements in internal management processes to ensure reductions are sustained over the long-term.

Following completion of EPC Stage 1 in 2002, Stage 2 was developed which details further measures in order for Council to reduce its greenhouse gas emissions and contribute to meeting the greenhouse gas reduction targets.

KEY OUTCOMES

ENERGY SAVINGS \$168,131 PER ANNUM
GREENHOUSE SAVINGS 447.9 TONNES CO ₂ PER ANNUM
WATER SAVINGS 28,615 KL PER ANNUM
SIMPLE PAYBACK PERIOD 7 YEARS

KEY SOLUTIONS

- MODIFYING AIR CONDITIONING SYSTEMS FOR OPTIMUM PERFORMANCE.
- UPGRADING LIGHT FIXTURES TO MORE EFFICIENT LUMINAIRES.
- INTELLIGENT OCCUPANCY BASED LIGHTING CONTROL SYSTEM
- POWER FACTOR CORRECTION EQUIPMENT TO REDUCE DEMAND CHARGES
- PHOTOVOLTAIC SYSTEMS FOR RENEWABLE ENERGY GENERATION
- SOLAR AND HIGH EFFICIENCY GAS BOILER SYSTEMS FOR EFFICIENT WATER HEATING AT AQUATIC CENTRES.
- WATER SAVING SYSTEMS FOR BUILDINGS AND PARKS.
- RAIN WATER COLLECTION AND STORAGE TO REDUCE CONSUMPTION OF TOWN WATER FOR PARK IRRIGATION.



Lessons & Outcomes

The environment is extremely fragile and as a community we have to do everything in our power to preserve it. This initiative is only small in comparison to statewide and even nationwide strategies that could be implemented, but in order to achieve the big picture, we have to concentrate initially on the small picture.”

Mayor of Hornsby Shire, Councillor Nick Berman

Front Image | Hornsby Shire Council Chambers

- 1 | Rainwater Collection
- 2 | Hornsby Aquatic Center
- 3 | Solar Thermal Collectors, located at Hornsby Aquatic Center
- 4 | Penrith Hills Library Lighting Upgrade
- 5 | Hornsby Administration Building
- 6 | Smart Controls and High Efficiency Lighting

STAGE ONE: 2002

The development of the EPC was undertaken over a period of 12 months. Due to the simple pay back period on the contract (7 years) there is another 3 years of savings still to be generated.

The EPC included approximately 250 Council maintained building and park sites, including the Council Chambers, aquatic centres, community centres, libraries, administration buildings and major sporting fields.

The EPC involved a variety of energy and water conservation measures including:

- Modifying air conditioning systems for optimum performance.
- Upgrading light fixtures to more efficient luminaires.
- Lighting controls to manage the lighting.
- Power factor correction equipment to reduce demand charges.
- Photovoltaic systems for renewable energy generation.
- Solar and high efficiency gas boiler systems for efficient water heating.

STAGE 2: 2007

Stage 2 of the EPC was developed over a short period of time taking advantage of the knowledge that was gained from Stage 1.

Stage 2 was developed over a period of 6 months.

Monitoring and Evaluation

In order to ensure the reliability and accuracy of the results of EPC Stage 1, ECS undertook a review of the measures implemented through the preparation of a Monitoring and Verification Report. This Report detailed the implemented energy conservation measures at each site and detailed their energy savings.

ECS supplied monitoring and verification reports which analyses energy and water savings at the sites covered by the EPC.

Data management is key to Council effectively managing greenhouse emissions as it allows monitoring of progress toward reduction goals and identifies areas that Council needs to focus on.

By the year 2010, this strategy aims to reduce Council's greenhouse gas emissions by 30 per cent

Environmental Impact

The EPC forms part of Council's Greenhouse Gas Reduction Strategy. By the year 2010, this strategy aims to reduce Council's greenhouse gas emissions by 30 per cent or 3,030 tonnes of greenhouse gas emissions per annum.

References:

September 2006,
Sustainable Energy Strategy 2006 - 2010, Hornsby Shire Council