

# Sydney Water

## *Energy Savings not just a drop in the ocean*

Sydney Water Corporation (SWC) will save up to \$38,000 in energy costs annually with a simple load-shifting project at the North Head Sewage Treatment Plant (STP) at Manly.

The plant provides high-rate primary treatment of sewage from a catchment of approximately 416 square kilometres extending west to Seven Hills, south to Bankstown and north to Ku-ring-gai and Collaroy.

Serving a population of more than one million people, the plant treats an average daily flow of approximately 330 million litres (ML) and discharges treated effluent through deep-water ocean outfall.

A study undertaken by the Demand Management and Planning Project (DMPP) found that Sydney Water's tunnel dewatering process - which typically requires between 3-4.5MW of electricity - was commonly scheduled to take place during periods of peak electrical demand.

The dewatering process is the removal of infiltration water that continuously seeps into the Northside Storage Tunnel (NST). The NST is designed to capture wet weather sewage overflows that were previously discharged to Sydney Harbour.



Since commissioning of the NST in 200, over 21 billion litres of dilute sewage have been captured by the NST and treated at North Head STP. During dry weather up to 3 million litres of groundwater seeps into the NST. In order to keep the NST empty and ready to receive wet weather overflows this water must be regularly pumped out.

The dewatering process took place regularly for between 1.5 to 3 hours, which usually coincided with daytime or evening peak periods for the electrical network (8am - 5:30pm and 6pm - 8pm respectively).



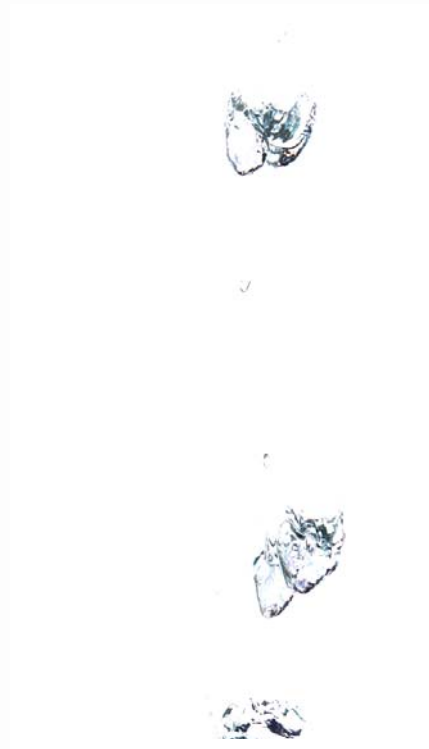
The solution was simple: shift the pumping time to occur outside peak hours. The dewatering was rescheduled to begin around 12am to avoid the power grid's peak period.

By shifting the operation of the dewatering pumps from on-peak hours to off-peak hours, Sydney Water will save about \$28,000 per annum. In addition, it is likely that Sydney Water has reduced the demand charges for this plant, and additional cost reduction of around \$17,500. In order for the rescheduling to occur, the Programmable Logic Controls (PLC) were reprogrammed.

The reprogramming required was minor and was done by a SWC control system engineer at little cost to SWC.

According to Gilles Walgenwitz, Senior Consultant with energy management company Energetics, the project illustrates how applying even the simplest of energy management principles can have a sizable effect on peak demand while significantly reducing energy costs.

“This was an extremely simple project. Originally, the automatic control system that initiates pumping out of the NST was set up to pump out the NST when the level in the tunnel reached a set point, which could occur at any time. The system was reprogrammed to reduce dewatering pumping needs during peak electricity demand periods,” said Mr. Walgenwitz.



Ed Shelley, Energy Analyst with Sydney Water’s Energy Management Unit, says Sydney Water welcomes any opportunity to improve its bottom line operating costs through energy efficiency and demand management initiatives wherever we can,” said Mr. Shelley.

“Serving one of the fastest growing regions in Australia, Sydney Water recognises the need to manage our energy use and resources wisely and to make every effort to protect our unique environment.”