Darebin City Council
The nuts and bolts of carbon neutrality – it starts with a plan

Local Government Energy Saving Champion
This award recognises the local government area with the largest investment in energy efficient and energy saving products as a percentage of available expenditure.

Local Government Green Powered Champion
This award recognises the local government with the largest investment in accredited Green Power as a percentage of available expenditure.

Achieving carbon neutrality is no mean feat. It requires a significant commitment to sustainability and a methodical approach to detail.

In fact, it requires an all-encompassing no-holds barred plan. And that's exactly what Darebin City Council has with its award winning *Climate Change Action Plan 2007-09*.

Adopted in June 2007, the plan committed Council to carbon neutral building for all new municipal buildings and to purchasing 100% Green Power, in line with its goal to cut corporate emissions to 20% of 1995 levels by 2010.

"Darebin's Climate Change Action Plan commits Council to carbon neutral building and purchasing 100% Green Power"

Situated in the northern suburbs of Melbourne, the City of Darebin is home to more than 135,000 residents. In 2008-09 Council spent more than 8%, or more than $4.4 million, of its total budget on a wide range of green products – the equivalent of nearly $70 per rateable property in the municipality.

This included significant expenditure on energy efficient features incorporated in the $1.4 million East Reservoir Neighbourhood House project, energy efficient lighting installed at Edwardes Lake and the conversion of 91 streetlights to T5 lamps, which use a third less energy than the previous streetlights. Council spent $803,403 on Green Power alone, saving 5633 tonnes of greenhouse emissions – the equivalent of removing over 1000 cars from the road.

In order to achieve carbon neutrality at the East Reservoir Neighbourhood House, careful planning was required from the outset.

Council used the Green Building Council's green star rating tool as a starting point or checklist for the project and in most cases went well beyond the Section J Building Code energy specifications in the building.

A project management team was created, including a Project Manager, Climate Change Action Officer and ESD Officer, to keep track of every nut and bolt, each decision made, and their resultant sustainability and efficiency.

Every stage of the process needed to be checked and re-checked, from the architect and designers to builders, suppliers and contractors, to make sure everyone was on board and understanding the end vision for the project-carbon neutrality.

The carbon neutral East Reservoir Neighbourhood House

While sourcing suppliers for green materials and systems was challenging in some areas, the biggest challenge to the team was assisting all contractors to adhere to green building principles.

For example, the highest energy efficient air cooling and heating system was specified and ready to be installed, but on inspection the control panels connecting the system to the building management system (BMS) were not installed as per specification. Every item, right down to the control panels, wiring, plumbing, insulation etc needed to be confirmed as meeting specifications- that is, green, or greener than the usual.

The Neighbourhood House opened in late 2009. The concept of a Neighbourhood House is that it approximates a person's home, and is designed to be a welcoming space and to be used as such. In East Reservoir Neighbourhood House's case, it's also been designed to be a demonstration centre of carbon neutral design.

SUSTAINABLE FEATURES OF THE EAST RESERVOIR NEIGHBOURHOOD HOUSE

- BMS controlled louvres for cross ventilation
- High efficiency heat pumps operate only when rooms are occupied
- Energy efficient hand driers and five star tap ware
- Water sensitive urban design uses stormwater run-off, with indigenous and native vegetation
- Waterless urinal and rainwater used to flush toilets
- Ceiling fans linked to heat pump operation
- 20,000 litre rainwater tank
- Instantaneous gas booster for flat panel split system solar hot water
- Energy efficient (low e) windows throughout the building
- Dimmable T5 lights and other high efficiency lamps throughout, all occupancy sensitive
- Concrete floor for thermal mass
- Passive solar design: north facing windows provide light all year round and heat in winter
- Wide eaves and verandas for shade in summer and heat in winter

While the Neighbourhood House is Council owned, it is a community-operated building. The supportive building manager receives ongoing training from the Darebin Climate Change Action Officer to help monitor and ensure all groups using the building understand its use and requirements – right down to using the automated lights, the waterless urinal and computer systems that turn themselves off out of regular-use hours.

As part of Council's neighbourhood renewal program, the residents have responded very well to the project and community groups have really embraced the building as a great community resource. Now it is up to users of the House to maintain its energy efficiency by using the building 's energy efficient features appropriately.

The project's success has fed in to Darebin's Accelerated Sustainable Building Program, including developing a sustainable public building design tool that will help with green building design in future.