



MACARTHUR RESOURCE RECOVERY PARK

MAKING WASTE WORK

THE CHALLENGE

Four South-West Sydney Councils – Camden, Campbelltown, Wollondilly and Wingecarribee – needed a solution that would complement their existing bin collection system, treat their residents' waste locally and extract the highest possible resource value.

The region has about 100,000 households (population: 300,000) and is Sydney's fastest growing area. The households in this region produce about 8% of all Sydney's household waste streams, and this is growing. The local councils called a resource recovery tender to process all their residents' waste for the next fifteen years. It is one of the largest waste tenders awarded in Australia.

THE SOLUTION

Following its successful tender bid in December 2005, WSN Environmental Solutions developed the Macarthur Resource Recovery Park. The Park aims to process all waste streams on a compact two-hectare site and maximise resource recovery. The site is an existing WSN landfill site, called Jacks Gully. This solution envisages that only a small amount of treated residual waste will be landfilled in the future, with the site's focus shifting in favour of waste processing and resource recovery.

The \$50 million Macarthur Resource Recovery Park will improve overall household recycling rates across the region from 50 to about 85%. Because more is done with the waste, the park will also create 40 extra full-time jobs.

This will be achieved at minimal extra cost to the local community as the Park will sell recovered resources and substantially avoid existing government levies on the landfilling of waste.

KEY ELEMENTS

- ▶ Residual/mixed waste bin: will now be treated at the **Ecolibrium™ Mixed Waste Facility** at the Macarthur Resource Recovery Park;
- ▶ Recycling bin: continued processing at Macarthur Resource Recovery Park **Materials Recycling Facility**, and;
- ▶ Garden Organics bin: is now being processed at the Macarthur Resource Recovery Park **Ecolibrium™ Organics Facility**.

THE FUTURE

Over the commissioning period, through to March 2009, a range of additional site facilities will be built. These include a Visitors Centre and Waste Education facility, and a Revolve Shop, that will sell recovered products back to the community.



MIXED WASTE FACILITY – KEY DESIGN FACTS

- ▶ Will process the household residual bin that previously went straight to landfill
- ▶ Starts commissioning on 4 July 2008. This is expected to take 9 months
- ▶ Landfilling of untreated waste ceases at the same time – transformation of the site from a landfill to a resource recovery park
- ▶ When fully commissioned, the plant aims to:
 - ▶ process 90,000 tonnes of household waste per year
 - ▶ recover 70 per cent of household waste that currently goes to landfill – equal to diverting about 9,000 garbage trucks of waste from landfill per year
 - ▶ recover about 18,000 tonnes per year of extra plastic and metal that should have been put in the recycling bin (about 1,100 semi-trailer loads)
 - ▶ produce about 10,000 tonnes of organic material for fertiliser each year (about 700 semi-trailer loads). This is produced from the food and other organic waste in the residual bin
 - ▶ fully power itself with green energy generated from capturing methane from the waste and converting it into electricity onsite
 - ▶ export surplus renewable energy to the NSW grid equal to powering 1,700 average homes each year
 - ▶ produce more water than it uses by extracting it from the waste and capturing stormwater onsite. The only potable water is for staff amenities (kitchen and bathroom)
- ▶ The plant is designed to be *greenhouse negative* over its life cycle – this means that the greenhouse emissions created in construction of the facility and the processing of the waste are less than the greenhouse emissions saved by displacing the use of virgin resources (increased recycling) and by the export of renewable energy. The life cycle saving is estimated to be the same as taking 4,000 average cars off the road each year.
- ▶ Compared to a bioreactor landfill, the difference is equal to taking 8,000 average cars off the road each year
- ▶ Compared to what used to happen to household waste from the Macarthur Region, the emissions now saved are equal to that saved if every household in the region switched off a medium sized fridge or dryer

MATERIALS RECYCLING FACILITY – KEY DESIGN FACTS

- ▶ Will process the household recycling bin
- ▶ Aims to process 35,000 tonnes of recyclables like plastic, metal, glass and paper (about 2,200 semi-trailer loads)
- ▶ Existing operation – no major change



ORGANICS FACILITY – KEY DESIGN FACTS

- ▶ Will process the garden organics/green bin
 - ▶ Started commissioning in May 2008
 - ▶ Aims to:
 - ▶ process 30,000 tonnes of garden organics per year
 - ▶ produce 18,000 tonnes per year of organic compost and mulch (about 1,200 semi-trailer loads) – products that can help return carbon to our soils, and which have good water retention properties
 - ▶ Will be fully powered by renewable energy generated from the mixed waste facility
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