ENVIRONMENTAL SOLUTIONS

Submission in Response to the Garnaut Review Emissions Trading Scheme Discussion Paper March 2008

WSN Environmental Solutions is a Sydney–based waste recycling and disposal company. Greater detail on WSN's history, operations and achievements are set out in Appendix 1.

The waste and recycling industry has a number of separate climate change impacts, and WSN endorses early inclusion for the waste sector in the Emissions Trading Scheme.

WSN has been at the forefront in promoting and building new technologies that essentially eliminate fugitive methane emissions from the gradual breakdown of organic waste in landfills, via increased recycling, conversion of organic waste into compost, water recovery from waste, and the conversion of methane into green electricity.

WSN has offered this service to local government and businesses for four years via its partnership with Global Renewables at Eastern Creek in Sydney's west, and WSN will soon open a second such plant near Camden in south-western Sydney. Together these plants will treat almost 20% of all Sydney's household garbage.

WSN also operates four of Sydney's five putrescible landfill sites, all of which have pipework that captures the majority of methane in those landfills and which provide the double-barrel benefit of methane destruction (emissions abatement) and renewable power generation. This has been happening for fifteen years, and WSN's sites now provide baseload capacity to power the equivalent of 35000 homes with green electricity.

WSN welcomes the most recent contribution of the Garnaut Review, proposing the structure of an Australian Emissions Trading Scheme.

It is proposed by the Review that waste be a covered sector from the outset of the ETS. This implies that the waste industry will, like all other covered sectors, be required to obtain permits to match net emissions from the commencement of the scheme in 2010.

The Review also generally posits that "Producers in the non-traded sectors [like waste] will, on average and in general, be able to pass on to households most of the costs associated with their direct and indirect emissions" (p 18).

There are some aspects that relate to the regulation of emissions from waste that WSN would wish to raise with the Review. These are:

1. Special features of waste emissions and implications for cost recovery

2. The separation of avoidance of GHG emissions from landfills from other GHG abatement activities.

3. The need for accurate measurement

Special features of waste emissions and implications for cost recovery

Unlike other covered sectors there is a time lag from the provision of the service of land filling and the GHG emissions that emanate from that service. Waste that is buried in landfill emits methane for up to 50 years. The emissions that are occurring today are not from today's provision of landfill services but are from past activities.

If these emissions from past activities require permits a landfill operator cannot go back and re-invoice past landfill customers to pass on the cost of future emissions from that landfilling.

The implications of this approach are substantial, with the industry potentially being required to obtain permits valued at hundreds of millions of dollars across Australia in the first year with no ability to retrospectively collect that cost from customers.

Inability to pass the cost on the consumer defeats the public policy objective of economic signals such as a carbon price, which is to influence behaviour. The customer can't change past behaviours, only future behaviour. Likewise the service provider cannot change past practice, only future practice.

It also defeats the assumption behind the public policy thinking of the Review that costs of future emissions can reasonably easily be passed through to consumers from day one of the ETS. We note that the case for issuance of free permits to trade-exposed, emissions intensive sectors is couched by the Review in terms of inability of TEEIls being unable to pass on full carbon costs. This is due to the likelihood of loss of business to foreign producers who could be subject to (possibly interim) lower carbon constraints.

To deal with this issue we propose that only the emissions from waste landfilled from the commencement of the ETS be subject to emissions permits. This will require on day one of the ETS (for landfills above any proposed minimum threshold), a one-off census of used landfill capacity and an assessment of the future GHG profile of that landfilled waste to establish a baseline. Such an assessment could be readily carried out by accredited assessors using a standardised methodology.

For emissions from prior landfilled material, we would support the current offset arrangements proposed for the non-covered sectors, with incentives remaining for capture of additional methane.

We note that the proposed New Zealand ETS has taken our recommended approach to this issue.

Further detail

Almost all of the emissions from the waste sector relate to fugitive methane emissions from landfill. As putrescible waste decomposes (without the presence of air) following landfilling, it creates, among other things, substantial amounts of methane gas. This gas can be produced over a 50 year period. The Federal Department of Climate Change summarises the situation thus:

"Methane is not generated immediately upon disposal of waste to land but after a lag of about a year as the waste degrades to the stage at which methane generation commences. Over several decades, as the waste decays, methane is generated and passes through the landfill into the atmosphere.....Methane emissions in one year depend on the stock of organic material present in the landfill, which has been deposited over many preceding years...The IPCC Guidelines recommend that the estimation of emissions from landfills is based on carbon stocks over 3-5 half-lives. That is, for waste with a half-life of twelve years, it is recommended that 36-60 years of waste data is used to derive emissions estimates": DCC, 2006, p3.

Over a 100-year period, the Intergovernmental Panel on Climate Change (IPCC) estimates that methane (CH_4) has 25 times the Global Warming Potential of CO_2.

Over a long period post-internment (up to 50 years), decomposing waste emits methane to atmosphere. The precise path of emissions from waste over its lifetime is variously measured by decay models. In the Australian context, the IPCC Tier 2 First Order Decay Model presented in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories is used: DCC, 2006. This model approximates exponentiated half-lives for different waste mixes, according to prevailing landfill conditions.

Most best practice landfills install as part of their construction engineering, systems of pipes and risers that are designed to maximise capture of the methane within landfills. While some is flared and therefore destroyed upon entering atmosphere, much is now flared in generators to create energy, creating the double benefit of abatement and displacement of fossil fuels. In fact, WSN's sites are the largest generators of landfill gas to energy in Australia, having commenced in 1994, and now power the equivalent of 35000 households with baseload, fossil fuel displacing energy via the electricity grid. The NSW Greenhouse Gas Abatement Scheme has provided significant incentive for this activity.

However, despite the capture of over half of such gas, a large amount nevertheless escapes to atmosphere. In smaller landfills, particularly in regional and rural areas, there is no gas capture.

Avoidance of GHG from landfills and other waste related abatement activities

WSN recognises that a guiding principle of the ETS is simplicity, and that the proposed scheme will tend to help the economics of renewable energy and recycling as industries seek less carbon-intensive inputs. However, we would contend that any transition needs to maintain the positive impetus provided by the Mandatory Renewable Energy Target (MRET) and the NSW Greenhouse Gas Abatement Scheme (GGAS) on the one hand, and provide additional push to help drive the market for recyclables.

It is important to acknowledge the contribution that the MRET and GGAS have made to the development of the landfill-gas-to-energy market in New South Wales. WSN has seen this develop first hand with our partners Energy Developments Ltd and Landfill Management Services Ltd. WSN's landfill sites first converted landfill gas to energy at Lucas Heights in 1994, and our sites across Sydney now power the equivalent of 35,000 houses with 24/7 baseload green energy via the grid. Our capacity will increase even further in the next few years.

However, there is a severe risk that replacement of one or both of these schemes with the single ETS may result in a weaker system of drivers for investment and abatement going forward. In our contention it is very important that these incentives remain in place until the operation of an ETS has matured in at least several years' time.

Further, we would contend that, extrinsically to the operation of the ETS, Government should be active in the area of providing additional incentives to drive resource recovery via recycling. There are multi-factor benefits in recycling (not just embodied energy savings) but also, to varying degrees, water and other inputs. The ETS does not pretend to do anything other than internalise the cost of carbon emissions. This issues of full pricing of water and other resources is not addressed by the ETS and needs additional attention from Government outside the bounds of the ETS.

The need for accurate measurement

In order to ensure ongoing integrity of the ETS, resources need to be devoted to developing robust measurement methodology across sites, and eventually to move from reliance on the difference between two numbers, one theoretical and the other actual.

We assume that there will be a move to direct estimation of fugitive emissions, as this will provide an effective means of avoiding the inevitable discourse over oxidation levels, relative performance of different approaches and so forth that currently surround the science of landfill emission measurement. We note that waste receives far more detailed treatment than much larger emitting industries due to the complexities of waste emissions equations. The greater the number of variables, the greater the conjecture.

In the end, the purpose of the equations is to derive the volume leaking to atmosphere over a twelve month period. Applied methods of direct estimation should be more robust, and will require ongoing development at the early stages of the scheme.

References

DCC, 2006 Australian Government Department of Climate Change, *Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks 2006: Waste*"

Appendix 1: About WSN Environmental Solutions

WSN Environmental Solutions has had thirty-five years' experience providing reliable and responsible environmental services to the greater Sydney area and beyond.

Our range of services includes:

- collection of waste and recyclables
- processing, recycling and recovery of resources from waste streams
- waste disposal
- education, advice, industry programs and other related services
- general contract services related to waste.

We own and operate Australia's largest and most advanced waste management network consisting of eleven waste recycling, processing and disposal facilities. We also offer access to Sydney's first large-scale Alternative Waste Technology (AWT) facility for household waste, located at Eastern Creek, and will soon open another AWT plant in south-western Sydney.

WSN Environmental Solutions is the only company in Sydney to offer a small vehicle drop-off service for a full range of household waste. We host around 700,000 small vehicle visits to our Sydney network annually.

The WSN network has consistently provided waste disposal and treatment services to Sydney for over 35 years. WSN is proud of its consistent record of constant availability for this essential service, 365 days a year.

WSN's operating facilities are highly engineered, modern, employ advanced technologies and are regulated by strict environmental and planning controls.

WSN is the only waste and recycling business in Australia to publish independently audited sustainability performance indicators, compliant with the AA1000 assurance standard. These performance indicators are published in our Annual Reports. WSN is also the first Australian waste and recycling company to publish its ecological footprint (2004-5 Annual Report and ever since).

The business currently employs around 400 people and is wholly owned by the NSW Government. WSN was made a State-Owned Corporation in 2001. It operates profitably and is required to act in accordance with the Government's *Guidelines for Competitive Neutrality*. All of WSN's business is fully contestable and it receives no funding from NSW taxpayers.

In 2006-7, WSN's revenue was $163million.

Our Charter

The Waste Recycling and Processing Corporation (trading as WSN Environmental Solutions) was corporatised on 1 September 2001 under the *Waste Recycling and Processing Corporation Act 2001*.

The principal functions of the Corporation are to:

- establish, maintain and operate waste facilities, secondary resource facilities and related facilities
- conduct business or provide services relating to waste and secondary resource recovery
- provide waste management services, secondary resource management services and related services
- research, develop and implement alternative technologies for managing waste
- trade in waste and secondary resources.

In exercising its functions, WSN must strive to achieve international best practice in waste management, acting in accordance with the principles of ecologically sustainable development.

On March 21, 2005 the organisation changed its trading name from Waste Service NSW (a name it had operated under since 1992), to WSN Environmental Solutions.

Our Sydney facility locations

Landfill locations – Lucas Heights, Eastern Creek, Belrose and Jacks Gully..
Material Recycling facility locations – Chullora, Jacks Gully, Belrose, Moruya
AWT locations – Eastern Creek, Jacks Gully*
Waste and Recycling Centres (transfer stations) – Belrose, Auburn, Artarmon, Ryde, Rockdale, Seven Hills and Chullora.

* will open July 2008

WSN – a brief history 1971-2000
In 1971, WSN was established by the NSW Parliament as the Metropolitan Waste Disposal Authority (MWDA). This was done in response to a need to improve waste disposal arrangements in the Sydney Metropolitan Area (SMA).

It was intended that the MWDA would regionalise waste disposal in Sydney, giving each Sydney council the ability to have an economically and environmentally sound waste disposal system, and to raise the environmental standard of waste facilities. Prior to this, councils ran putrescible landfilling. However, some councils were reluctant to give neighbouring councils access to their facilities, preferring to preserve the local capacity for their ratepaying community. The establishment of the MWDA therefore sought to create a Sydney network that would provide each council access to facilities for disposal of waste. This encouraged the consolidation of putrescible waste facilities, as opposed to a larger number of smaller putrescible landfills (which emerged in Melbourne around the same time, for example).

In addition to its statutory monopoly over putrescible landfilling in the SMA, the MWDA also held regulatory powers, allowing it to approve the development of new waste facilities.

Throughout the late 1970s and the 1980s, demand for disposal capacity rapidly increased. In particular, commercial and industrial waste increased from approximately 500,000 tonnes in 1977 to 2.2 million tonnes twelve years later. This put waste management squarely on the community's agenda. In its regulatory role, the Disposal Authority adopted the waste management hierarchy – very similar to the current State Government waste hierarchy – that emphasised actions "higher up" the chain of production to eliminate the rising "end-of-pipe" volumes. This was in early 1989.

In 1989, the new State Government changed the organisation's name to the Waste Management Authority (WMA). This change reflected the trend toward the management of waste (including minimisation and product stewardship) as opposed to systems entirely constituted by disposal to landfill. In its 1990 strategy, the WMA focussed on integrated waste management and priority was given to reduction at the level of production. It was clear from stakeholder consultation that targets were needed to drive waste minimisation policy. WMA proposed targets complemented by a "carrot and stick" approach to changing behaviours.

In 1992, a significant shift in the evolution of the organisation occurred. Most of the Authority's regulatory and policy functions were given to the Environment Protection Authority (EPA, now Department of Environment and Conservation). The Authority took on the sole role of network operator, and acquired a new official name (Waste Recycling and Processing Service), but thereafter traded as Waste Service NSW.
In 1994, WSN pioneered the first large-scale generation of green electricity from landfill gas (methane) at its Lucas Heights facility.

Waste policy shifted in 1995 with the election of a new state government. The new policy reflected the change in community thinking about the state of the environment. The community expected higher standards of environmental protection, and better use of technology and waste management practice to reduce waste volumes to landfill.

A target was set (originally of 60% reduction of waste to landfill by the year 2000) and regional Waste Boards run predominantly by councillors to manage waste planning were established. Stricter licensing conditions and industry waste plans were introduced.

WSN's current network has been built over the last thirty years (see Table 1). Various facilities were operated by WSN and have since closed. These facilities must be managed for environmental effects (principally ongoing landfill gas and leachate production) for up to thirty years after closure, and are then rehabilitated and returned to the community for appropriate use. Examples of closed sites currently being managed by WSN are Thornleigh (closed 1985), Merrylands (1984) and Castlereagh (1998).

Table 1: Current Operating WSN facilities – year of opening

Landfills	
Jacks Gully	1975
Belrose	1979
Eastern Creek	1984
Lucas Heights 2	1987
Transfer Stations	
Rockdale	1979
Auburn	1984
Ryde	1985
Artarmon	1989
Seven Hills	1993
Belrose	1994
Chullora	1997
Materials Recycling Facilities	
Jacks Gully	1996
Chullora	1997
Alternative Waste Technology	
Eastern Creek AWT PPP	2004