

1. Complementary Measures for Landfill Emissions

Following the Australian Government's recent determination that so-called 'legacy waste emissions' from landfills will not be covered by the proposed CPRS, the Department of the Environment, Water, Heritage and the Arts (DEWHA) has indicated that: 'The need to develop complementary measures for legacy waste emissions will be considered as part of the National Waste Policy.'

The Draft National Waste Policy Framework, which DEWHA released for discussion on July 8, 2009, seeks responses to the question: 'Are such (complementary) measures necessary and if so, what form should they take?' LMS Generation welcomes this opportunity to contribute further to the National Waste Policy consultation process.

We recommend consideration of the targeted use of carbon offsets as an evidence-based approach for simultaneously addressing significant challenges for two of Australia's most important sustainability policy areas:

- The Carbon Pollution Reduction Scheme (CPRS); *and*
- The National Waste Policy.

In summary, we propose that:

- a) Complementary measures are both necessary and well-suited to maximise the new and ongoing reduction of legacy emissions from landfills;
- b) Carbon offsets are the best complementary measure to adopt; *and*
- c) Adopting such an approach would be evidence-based and achievable, drawing on the real experience and success of existing schemes (see below) in achieving the core objective of reducing greenhouse gas emissions.

Background

Carbon offsets are a market-based instrument that has been used internationally and in Australia – in both voluntary and compliance carbon market situations – to promote business innovation and investment in greenhouse gas emission reductions.

In Australia's waste sector, carbon offsets created under the Australian Government's Greenhouse Friendly Program (GHF) and the NSW Government's Greenhouse Gas Abatement Scheme (GGAS) have played a positive role in reducing greenhouse gas emissions from a growing list of landfills over recent years. (Such offsets have assisted Australia's landfill gas power generation sector to create over 50 commercial generation sites around the country, including in regional areas, with investment of over \$500 million and about 300 jobs directly with considerably more indirectly. Current generation capacity is about 850 gigawatt hours (GWh) a year, enough base-load renewable energy to power up to 200,000 homes on a continuous basis, with annual emission reductions of over 4 million tonnes of CO₂-e from methane destruction and energy off-set.)

As originally outlined, the proposed CPRS will supersede both GGAS and Greenhouse Friendly, effectively eliminating carbon offsets in the domestic waste sector. This policy direction threatens to undermine both:

- The ongoing financial viability of numerous established waste-to-energy plants currently generating base-load renewable electricity for the grid by using landfill gas as fuel; *and*
- The potential for substantial expansion of the landfill gas-based renewable energy generation industry, underpinned by carbon offsets, to deliver further waste sector emission reductions.

Commercially-Driven Approach

As proposed above, using carbon offsets can underpin a market solution to drive emission reduction and other environmental benefits at lower cost to the community than a pure regulatory approach. In this regard, we

submit that mandatory gas collection on legacy sites could well be to the detriment of gas collection effectiveness.

As with existing schemes gas capture should be commercially driven – offering a financial reward for volume of effort. Mandating gas capture will make legacy sites ineligible for the generation of offsets (CDM or similar require additional action for eligibility), and will not attract commercial investment. Landfill owners, mostly local councils, will be required to finance the gas collection infrastructure and ongoing maintenance. The perverse outcome of this would be lower capture efficiency but at 100% cost to the community.

It is proposed that the best environmental outcome would be driven through non-mandatory gas capture and ability to generate and sell carbon offsets into the (non-voluntary) CPRS scheme as is proposed in other regions like the USA. The American Clean Energy and Security Act, proposes landfill gas be eligible to generate domestic off-sets for sale into their proposed ETS.

See Appendix A for LMS's more-detailed discussion of how carbon offsets could work as a complementary measure.

2. Broader Responses to Draft Framework

Organics

Methane generation is a greenhouse gas emission concern, but also a significant renewable energy opportunity. Through *ensuring landfills are established and managed to best performance standards* fugitive methane loss can be minimised and where renewable energy is generated from the captured methane it has the effect of reducing emissions by a further 20%¹ so providing a net carbon benefit (a reality today at purpose-designed and managed sites).

Any mandated loss of organics from landfill will unnecessarily cost green jobs and reduce Australia's renewable energy production. There is a strong need to maintain a threshold level of organics in landfills, and potential alternative policies such as the production of low-quality compost do not have proven scientific and economic merit. The current alternatives to placing organics in landfill often have a worse environmental outcome when their energy usage and true emissions are taken into consideration.

As an electricity generator, and as methane is our fuel source, LMS is commercially committed to maximising gas capture at landfills. As our projects require at least a long pay back for commercial viability we also have a long term focus on this. A substantive loss of organics would mean that landfills currently or set to undertake this type of resource recovery will become unviable in the longer term. Loss of this commercial incentive could actually result in increased emissions (refer also to Complementary Measures *issue*).

Waste Hierarchy

LMS acknowledges the critical role that waste hierarchies have played in waste improving sustainability. However, a number of the submissions (to the Consultation Paper), covering a broad spectrum of Australian industry, highlighted limitations of the strict hierarchy in light of carbon pollution or life cycle thinking. As hierarchies are inherently limiting alternative mechanisms such as Life Cycle Analysis must be available to assess prospective technologies and promote innovation.

¹ [Hyder Consulting Report – Landfill gas capture for greenhouse neutrality \(2008\)](#)

Broad Recognition of Methane to Energy as Resource Recovery

Various state based funding opportunities exist to provide assistance to businesses to increase resource recovery from waste, yet definitions of resource recovery activities across these jurisdictions vary. In some cases this precludes the capture of landfill methane for renewable energy generation. As an example of this conflict is the Draft South Australian Waste to Resource Policy that restricts resource recovery to activities occurring prior to landfilling. Access to state based funding (such as grants to enhance resource recovery) may be used (for example) to assist regional landfills shift from methane flaring to energy generation.

International Context

The recently released European Environment Agency report² highlights that despite the milestone 1999 Landfill Directive; there is no evidence that it has lessened MSW generation. In fact the report found the average European citizen has produced an average of 10% more waste in 2007 compared with 1995. The case for the Landfill Directive was an impending landfill shortage in Europe, but as highlighted in the NARGA³ submission, extractive industry in Australia annually opens vastly more airspace than the volume of the waste that we generate. Australia's need to reduce waste should therefore only be focused on minimisation of carbon pollution (particularly at the production end), and not be swept up in the European directive and the EU specific issues. The European situation does highlight that such end-of-pipe solutions will not reduce the production of waste, merely add cost to its final treatment.

Draft NWP Framework: Themes and directions

NWP Framework Issue	LMS Response
1. Taking responsibility	Agree
2. Improving the market	Agree with sustainable support mechanisms, but not "picking winners" – merit-based assessment and recognise and support existing successful relationships/businesses. Agree with development of guidelines to best practice, includes understanding successful and sustainable practices. Understand that effective methane capture and energy generation are only mutually inclusive where threshold organics exist.
3. Pursuing sustainability	Agree, but: <i>Science (LCA) and rigorous economic assessment must underpin decisions made under this theme.</i> Methane emissions from waste should be treated as the significant opportunity for renewable energy as is currently been realized. The policy should have no reason to be opposed to this (LFG) business – particularly given it delivers a net benefit. All alternatives need to be assessed to consider emissions (GHG and biosecurity); energy efficiency; economic sustainability; and end market sustainability. The policy framework needs to avoid picking winners.
4. Facilitating investment	Consider the risk of policy/legislative loss of organics, and actual achievability of this based on National and International experience, various Zero Waste policies versus the current benefits, investment and employment delivered by the LFG industry. Support policy development that is not limiting but allows innovation (circa 2000 Waste Hierarchy v LCA)
5. Reducing hazards	Agree
6. Reporting on performance	Agree – including rigorous science based LCA
7. Tailoring solutions.	Agree – LFG – renewable power is and can continue to be a significant contributor to regional development.

² [Diverting waste from landfill - Effectiveness of waste-management policies in the European Union](#)

³ National Association of Retail Grocers of Australia submission to the National Waste Policy consultation (2009)

Appendix A: How a Carbon Offset Complementary Measure can be Structured to Address Legacy Waste Emissions in Tandem with the CPRS

Introduction

An evolving challenge for good public policy in the waste management and resource recovery sector is to deliver cost-effective solutions for communities which simultaneously address:

- Traditional environmental health and amenity requirements;
- Use of waste stream materials as a productive resource;
- Greenhouse gas emission reduction and elimination; and
- Increasing the amount of electricity generated from renewable sources.

The distributed generation of base-load renewable energy using landfill gas as fuel is a proven process that addresses all of these requirements and already is widely used in Australia and other jurisdictions around the world including the US. The landfill gas power generation industry has grown rapidly in Australia in recent years because of the availability of carbon offset income for entrepreneurial operators through GGAS and Greenhouse Friendly in addition to Renewable Energy Certificates (RECs) through MRET (and now RET).

There is an achievable opportunity to continue using carbon offsets under the proposed CPRS as a market-based instrument to:

- Increase the reduction of emissions from legacy landfill sites through gas capture, with either flaring or ideally renewable energy generation;
- Maintain the financial viability of existing landfill gas capture, flaring and renewable energy generation operations (which are significantly dependant on carbon offset income), thus addressing their transition challenges into a new CPRS regime; and
- Drive further investment and innovation including export potential.

How Could It Work?

- Existing landfill/waste recovery operations that are registered under either GGAS or Greenhouse Friendly would be allowed to create offsets that are equivalent to CPRS permits and are tradable into the scheme (as is being considered under the US 'Waxman-Markey - American Clean Energy and Security Act' – thus extending the positive role of emissions trading to a second tier of projects);
- This would be extended to include emissions captured from closed landfill sites, legacy waste deposited prior to the scheme commencement (now targeted for July 2011) and waste under the 25kt threshold that is not covered under the CPRS;
- Landfill and other waste industry operations would continue to operate subject to current or evolving environmental regulatory requirements imposed by state/territory and local authorities in key areas such as odour, leachate control and on-site gas containment;
- However, installation of landfill gas capture and methane destruction technology would not be mandated for current and closed landfill sites;
- Rather, a carbon offsets model linked into the CPRS would be used (as outlined above), driving further investment and innovation in waste-to energy with a dual benefit of emission reductions and renewable energy generation for the grid at numerous distributed sites in metropolitan and regional areas;
- Under this type of arrangement local ratepayers would be spared significant costs i.e. by comparison to their councils having to fund mandatory landfill gas emission capture infrastructure and they would typically receive a royalty income from offsets created;
- The methodologies, registry requirements already predominantly exist within GGAS and could be relatively easily transferred to Canberra, or alternatively international methodologies from a program like the Clean Development Mechanism (CDM) could be utilised;
- This measure also would mean that CDM-type projects in Australia would be eligible (removing the current anomaly where for example a CDM credit from a landfill gas project in Asia will be allowed into the CPRS when an identical offset created from an uncovered source in Australia will be ineligible); and
- This type of commercial incentive drives maximum gas capture and innovation, thereby promising better environmental outcomes.