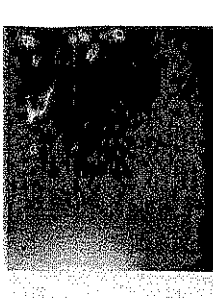

LEADERS IN RENEWABLE ENERGY AND CARBON ABATEMENT GENERATION

LMS generation

Enquiries: Dr Jon Varcoe
(08) 8357 2777

9 July 2010

Queensland Waste Strategy consultation
Natural Resources and Environment
Department of Environment and Resource Management
GPO Box 2454 Brisbane QLD 4001

Attention: Project Manager

Dear Sir/Madam,

Submission: Queensland's Waste Strategy 2010-2020

LMS Generation is pleased to be given the opportunity to provide this submission to the Queensland Waste Strategy consultation.

LMS is Australia's leading specialist renewable electricity provider from waste and we are focused on providing the best environmental outcomes at least cost to the community. Our principals are the pioneers of biomass gas based renewable energy use in Australia. It is this approach that is responsible for most of the reduction in Australia's waste emissions since 1990. This proven approach provides cost effective waste management with positive carbon and renewable energy benefits.

LMS wish to commend the authors of the draft strategy for recognising that landfill gas recovery for renewable energy generation has a significant place in recovering resources from waste. We would like to highlight the fact that in 2008 landfill gas provided the Queensland community with approximately 11% of electricity generated Renewable Energy Certificates, all of which was exported to the grid. Landfill gas is not only a sustainable long term renewable energy resource it is also an important source of base-load electricity that is needed to underpin a reliable renewable energy portfolio.

We hope that the content of this submission will be of assistance to the Queensland Government in framing this important strategy.

Please do not hesitate to contact me should you require any further information.

Yours sincerely,

MANAGER - SUSTAINABILITY
Dr Jon Varcoe

Head Office
2, 48 King William Road, Goodwood
South Australia 5034
T (08) 8357 2777
F (08) 8357 2700

Gas Group
1 Union Street, Stepney
South Australia 5069
T (08) 8363 0100
F (08) 8363 7700

Energy Group
Unit 2/269 Abbotsford Road
Bowen Hills, Queensland 4006
T (07) 3257 4949
F (07) 3257 4939

Power Group
1 Union Street, Stepney
South Australia 5069
T (08) 8363 0100
F (08) 8363 7700

LMS Generation Pty Ltd
ABN 39 059 428 474
E info@lms.com.au
W www.lms.com.au

Submission: Queensland's Waste Strategy 2010-2020: Waste Avoidance and Recycling Consultation Draft

LMS Generation Pty Ltd

9 July 2010

Head Office
2, 48 King William Road, Goodwood
South Australia 5034
T (08) 8357 2777
F (08) 8357 2700

Gas Group
1 Union Street, Stepney
South Australia 5069
T (08) 8363 0100
F (08) 8363 7700

Energy Group
Unit 2/269 Abbotsford Road
Bowen Hills, Queensland 4006
T (07) 3257 4949
F (07) 3257 4939

Power Group
1 Union Street, Stepney
South Australia 5069
T (08) 8363 0100
F (08) 8363 7700

LMS Generation Pty Ltd
ABN 39 059 428 474
E info@lms.com.au
W www.lms.com.au

Table of Contents

General

LMS Generation Pty Ltd (LMS) wishes to commend the draft strategy that acknowledges the unique differences between landfills (bioreactors) that recover energy from those that do not. As with previous submissions (to the National Waste Policy and other state waste strategy papers) LMS has also supported the diversion of organic waste away from landfills without (or a future potential for economic[1]) gas recovery and we are pleased that the draft strategy outlines a similar approach. Further we wish to highlight the recognition *that bioreactors hold a unique place in managing waste* and that the *recovery of energy from the biodegradable fraction should be differentiated from the disposal of inorganic wastes*. LMS also supports policy that reduces the consignment to landfill of all inorganic resources.

In making these differentiations it is evident that the Queensland Government is recognising the significant potential contribution that energy (electricity) exporting landfills can make. In 2008 more than 11% of all electricity generated Renewable Energy Certificates (RECs) generated in Queensland came from landfills. Nationally this figure was almost 14% making landfill gas to electricity projects the most significant source of base-load renewable electricity (excluding old hydro schemes).

Waste Hierarchy

LMS acknowledges the critical role that waste hierarchies have played in waste improving sustainability. However, as hierarchies are inherently limiting, alternative mechanisms such as Life Cycle Analysis (LCA) must be available to assess prospective technologies and promote innovation.

The waste hierarchy might be considered a suitable rule of thumb to classify finite or non renewable resources. For example it is likely that a LCA of emissions from plastic would favour the re-use or recycling before energy recovery from the plastic as the emissions from energy recovery would count as a greenhouse (or fossil C derived) emission. Similarly the recovery of metals as finite resources would undoubtedly favour recycling or reuse.

However, to classify a renewable resource like organic waste in such a manner is problematic. Organic waste potential as a reliable supplier of base load renewable energy should not be overlooked, as would be the case with ridged adherence to a hierarchy. In light of climate change being the preeminent environmental issue for us and future generations it is now conventional thinking that the balance of benefits for organic waste management is the amount of energy that can be recovered. Particularly as we need to find reliable sources of base-load power to supplement the intermitted nature of most renewable energy forms. Landfill gas is clearly one that is proven.

One of the problems with rigidly applying the hierarchy is that it fails to take into account advances in knowledge and technology. This has been proven in the recent LCA undertaken for the Wollert Landfill in Victoria (Hyder, 2010)[2]. That study jointly commissioned by the landfill owner (Hanson) and the City of Whittlesea found conclusively that from a LCA perspective the impact on global warming from the landfill was significantly better than for cutting edge or futuristic organic waste diversion practices (including AWT and in-vessel composting).

"Hyder Principal Consultant, Mr Peter Allan, said the outcomes of the study present significant challenges for both government and industry. The findings mean that governments at all levels should not make assumptions about the greenhouse gas performance of alternative treatments over landfill without assessing the full long term impacts of the particular technologies." - Hyder Consulting Media Release February 2010

[1] Also see section below: General Comment – Carbon offset v Mandated Gas Capture

[2] Hyder 2010 Comparative Greenhouse Gas Life Cycle Assessment of Wollert Landfill

Much of the conventional wisdom that formed waste hierarchies fails to take into account the levels of gas capture attainable under modern landfill engineering, and rarely are the emissions from composting (energy, methane, nitrous oxide and transport) fully accounted. Future strategies should not be tied to inflexible options that overlook these relevant aspects and should offer the option for inclusion of a LCA.

Diversion Targets

Diversion targets should be aimed at facilitating maximum resource efficiency and therefore should be resource focused. The resource value of waste should not be measured by a flat percentage that is translated into a measure of gross volume or tonnage. Such policy would steer the focus of resource recovery to high mass rather than high value (economic and environmental). This can be clearly illustrated in comparison of two distinct waste types: organic and e-waste.

Organic waste represents approximately 60% of all waste landfilled or more than 13 million tonnes in Australia. By comparison e-waste has been estimated to be generated at a rate of 60,000 tonnes per annum (less than 0.5% of organic waste)[3]. Landfilling of e-waste provides a disproportionately high toxic risk from chemicals such as PVC, lead mercury and arsenic. Landfill disposal of e-waste also results in the potential loss of high value finite resources (such as Indium and Tantalum). Despite landfilled organics delivering a significant benefit through Australia's largest supply of base-load electricity (excluding old hydroelectricity) diversion targets tend to misdirect attention away from these real issues.

International Context

The recently released European Environment Agency report[4] 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 European situation does highlight that such end-of-pipe solutions will not reduce the production of waste, merely add cost to its final treatment.

Developing Markets for Recovered Resources

Energy is the most fundamental of all resources. LMS wish to highlight the most marketable and sustainable resource that can be derived from biodegradable organic waste is renewable electricity. The diversion of organic waste away from this benefit into undeveloped and potentially unsustainable alternative markets (such as low grade compost from mixed waste sources) present an unnecessary cost to the community and environment.

General Comment – Carbon Offset v Mandated Gas Capture

It is noted that the strategy hopes to achieve a reduction in emissions from landfill by 50%. LMS commends approaches to achieving this such as the diversion of organic waste away from landfills without gas capture; however we advise against any form of specifically regulated gas capture. Rather than specifically regulating capture better environmental outcomes are achieved by nominating overall goals or outcomes and fostering marked-based drivers to incentivise gas capture.

Where the installation of gas capture equipment is mandated generally a minimum amount of infrastructure is installed, it is then often not maintained, expanded or utilised properly over time. Resulting in a far worse environmental outcome than that achieved with an incentive based approach.

---

[3] TIPPING POINT: AUSTRALIA'S E-WASTE CRISIS Total Environment Centre December 2008

[4] Diverting waste from landfill - Effectiveness of waste-management policies in the European Union

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.

To date 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 driven the reduction in greenhouse gas emissions from the sector (the only one to reduce its emissions over 1990 levels).

These offsets have assisted Australia's landfill gas power generation industry 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 CO_2-e** from methane destruction and the displacement of coal.

Mandating gas capture will make landfill sites ineligible for the generation of offsets (CPRS, CDM or similar schemes require action additional to that regulated for eligibility) and they will therefore not attract commercial investment. Landfill owners, mostly local councils, will be required to finance the gas collection infrastructure and ongoing maintenance themselves. The perverse outcome of this would be lower gas capture but at 100% cost to the community.

Providing a financial incentive through carbon offsets drives installation of gas capture and flaring at smaller sites and as the majority of landfill gas power generation sites are not economically viable without offset revenue new generation sites are unlikely to be built and existing sites potentially shut down without offset revenue.

Experience has proven that carbon offsets can underpin a market solution to drive emission reduction and a better environmental outcome at a lower cost to the community than a pure regulatory approach. In this regard, we submit that mandatory gas collection could well be to the detriment of gas collection effectiveness and ultimately environmental outcomes.