ENERGY FROM WASTE SUSTAINABILITY PROJECT

NOTES FROM THE HOBART STAKEHOLDER WORKSHOP

Held: Wednesday 25 September 2002

Time: 9.00 am until 12.00 pm

Venue: The Lands Building 6th Floor Conference Room

134 Macquarie Street

For more information on the Energy from Waste Sustainability Project please visit the project website:

www.wmaa.asn.au/efw/home.html

Or contact the Project Manager,
Matthew Warnken
Phone: (02) 9571 4800
Email: matthew@warnkenise.com.au

This project is an initiative of the:

Energy from Waste Division of the
WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA

Commonwealth Government funding through the Australian Greenhouse Office supports this project.

AUSTRALIAN Greenhouse Office

Introduction

There are a number of issues and concerns associated with energy from waste projects. On the positive side, recovering energy from waste can generate renewable electricity, reduce the amount of waste disposed of to landfill and reduce greenhouse gas emissions. However, there are also potential negative environmental and human health effects associated with energy from waste projects.

The Energy from Waste Division of the Waste Management Association of Australia, with assistance from Commonwealth funding through the Australian Greenhouse Office, initiated the process of developing a Sustainability Guide to resolve these issues. Part of this process was a national series of eleven stakeholder workshops.

The purpose of the stakeholder workshops was to ensure that all of the positive and negative factors associated with Energy from Waste (EfW) projects were identified and then incorporated and resolved within a Sustainability Guide for EfW. It is intended that the Guide will be used to ensure that Energy from Waste projects maximise benefits and minimise negative impacts in a way that supports the sustainable development of Australian society.

Below are the issues that were identified at the Hobart Stakeholder Workshop. These issues will be integrated into a final report, representing all of the issues raised by workshop participants at this and the other ten national workshops.

The issues identified at the workshop will be used as a "yardstick" against which the Sustainability Guide will be measured, both to ensure that all issues have been addressed in the Guide, and to ensure that the philosophical basis of the Guide is correct.

Round Table Discussion

There were 22 participants at the Hobart Stakeholder Workshop. (A participant list is included as Appendix 1). Participants were seated around three tables to discuss issues related to Energy from Waste. The summary of the discussion from these three tables was recorded onto over-head transparencies and is presented below exactly as scribed.

A catalogue of issues recorded by participants onto flash-cards is included as Appendix 2. These issues are also presented exactly as scribed. The colour of the flash-cards was used to differentiate between tables.

Green Table

- Air Pollution;

-Emission concern, eg: Dioxins.

- Organics;

-Is burning organics the best use of the resource?

- Greenhouse;
  - Burn more carbon in EfW plant to make energy.
  - Simply presented greenhouse gas balance eg: EfW versus landfill and/or other options.
  - Is water vapour a Greenhouse Gas?
  - Have we got enough correct data on waste volumes/quantities and calorific values of waste?
- Sustainability/Governance/Policy Regulation;
  - In order to achieve it…?
  - Compliance is essential.
  - Policing of EfW very important.
- Social;
  - Is there a social responsibility to ratepayers if they have already invested via Council in, for example, a landfill?
  - Concern that waste to Energy may undermine waste management hierarchy.
  - Look at incentives to maintain Recycle, Reduce, Reuse (R.R.R).
  - How to build in flexibility so that if R.R.R. is increased, the EfW plant does not collapse.
- Economic;
  - Will EfW add economic burden to local government and/or communities?
  - Objective assessment is needed to look at the impact of EfW on community/social structure vs. alternatives vs. status quo.
- Disposal of Residue;
  - How will waste after EfW be dealt with eg; by landfill, who runs this?
  - Quantity, quality of ash/by-products and their hazard/risk.

- Need Guidelines.
- What are other alternatives for EfW? eg; road base.

Red Table

- Environmental Benefits;
  - Reducing landfills.
  - Reducing ground water contamination.
  - Landfills become inert sites.
- Environmental Problems;
  - Health Risk.
  - Emission (types/levels).
  - Waste Residues.
  - Waste Stockpile.
  - Regulation/management.
  - Emission Monitoring.
  - Security in Supply of Waste Stream;
  - Continue to encourage Waste Minimisation (Recycle, reduce, reuse).
  - Cradle to grave concept.
  - Variability.
  - Technology-Public Perceptions and Site Selection;
  - Connecting to power grid.
  - Waste from old landfills (can it be used?).
  - Acceptability/perception of new technology.
  - Use of natural resources for plant operation (ie: water).
  - Job losses.
  - Reliability/Availability of Plant;
    - What happens during non-operation?
    - Risk of breakdown.

- Economics;
- Cost competitive against other techniques.
- Subsidisation.
- Environmental effective emission control (sale point).
- Monopoly situation.

Blue Table

- Transportation to EfW;
  - Long distances
  - Several council's looking at landfill closure and seeking alternatives.
  - Increased costs to rate payers.
  - Pilot WTS to feed into facility.
- Negatives for Local Government;
- Removal of landfill revenue.
- Rehabilitation costs for landfill closure, who pays?
- Change in focus for landfills.
- Regulation;
  - Role of DPIWE; with regard to regulation/enforcement.
  - Enforced closure of existing landfills.
  - Focus on "Waste Hirearchy" – reduce/reuse etc
  - Low Landfill charges, no incentives for EfW.
  - Who owns waste?
- Resource Recovery;
  - Waste Minimisation Opportunities.
  - Deferral at site.
  - Set up of recovery operations at WTS.

Results of Citizen's Jury;

These are listed in the table below.

Table	***Strongly No*** EfW has **no** role to play in any form	***Contingent*** EfW has a role to play but that role is determined on case by case issues	***Strongly Yes*** EfW **always** has a role to play in any form
Green	0	7	0
Red	0.5	6 (2@0.5)	0.5
Blue	0	8	0
Totals	0.5	22	0.5

General comments from the tables regarding energy from waste;

Green Table

- Wrong Question asked.
- Should have been "Does EfW make a positive contribution?"
- Can't rule simply 'in or out'.

Red Table

- No Comments

Blue Table

- No Comments

Appendix 1 – Hobart Workshop Participants

Name	***Organisation***
Maree Bakker	DPIWE
Phillip Bingley	Derwent Valley
Frank Cattell	DPIWE
Jaimie Clarke	Hobart City Council
Mark Cretney	DPIWE
Akistair Graham	Tasmanian Conservation Trust
Mike Griffiths	Southern Waste Strategy Authority
Doug Hagen	Hagen Oil
Graeme Howard	Southern Waste Solutions
Justin Jones	Jones Waste Management
Brad Mashman	Pantechnicon (Tas) Pty Ltd
John McCambridge	SEMF
Geoff McCord	Cleanaway
Frances Mowling	
Graeme Roberts	Consultants Facilitator
John Stevens	Clarence City Council
Tania Streeter	DPIWE
Stephen Thompson	Test Energy
Matthew Warnken	Warnken I.S.E. P/L - Project Manager and Workshop Facilitator
Iain Williams	DPIWE
Phillip Wise	Collex P/L
Peter Wood	Test Energy

Appendix 2 – Catalogue of Issues Identified at the Hobart Workshop

Green Table

- Transport and Energy Balance;
  - Waste Transportation issues.
  - Concern that a lot of energy will be used to transport waste to a waste to energy plant – what will the net energy debt/gain be?
  - Need to ensure local applicability – energy infrastructure, community size, remoteness from major centres etc.
- Policy – Philosophical Issues;
  - Fear of rationalising and encouraging destruction of bio-diversity and other values of natural ecosystems (ie: native forests in Tasmania).
- Social Responsibilities;
  - What about existing infrastructure having been established by local government at a high cost eg; expensive landfills. Although maybe not the best technology, my sympathy is with the ratepayers that have to bear the costs.
- Governance/Regulation;
  - Sustainability requires strong regulation, monitoring and compliance. If one is not working, how do we guarantee environmental emissions are sustainable?
  - Emission control systems need "policing" and maintenance and to be non-by-passable (monitored and secure).
- Data;
  - EfW encourages high calorific material. As a result plastics are sought after, however this is counter to recovery and recycling.
  - Water Quantity and calorific value?
- Economics;
  - Determination of waste volumes at disposal site and sustainable and affordable gate price of waste disposal.
  - Direct costs of recycling are largely born by local government.
  - Will EfW add a further burden? (majority of data suggests $50-$100/tonne more costly).
  - EfW needs to be economically sustainable. Given Tasmania's land costs, are there better opportunity costs for the investment?

- Concern over commercial viability – transferring risk to the community.
- Is incineration compared to landfill expensive and unviable?
- EfW plant is a long-term infrastructure, given the population decline what does this do to the finance/economics in Tasmania? ie: growth of waste stream is not certain.

- Greenhouse Gas Issues;

– Concern over 'optimistic' assertions of potential greenhouse gas emissions savings. There is a need for greenhouse gas minimising strategies for the whole resource use path.

– Greenhouse gases are not eliminated.

– EfW is approximately 20% efficient. Whereas single cycle gas is 30% efficient. ie: more carbon per KW?

– EfW claimed to displace energy from fossil fuels – currently there is no fossil fuel use in mainland Tasmania.

– Landfill generates more methane; after landfill gas recovery (approximately 40%), how does it compare with EfW?

– EfW uses lime neutralisation – what is the greenhouse debit?

– How much energy do waste to energy plants use – are they using more energy than they produce?

– Incineration versus landfill. Both produce gases that can be harvested and utilised.

- Composting versus EfW;

– Is burning organics the best use of the resource?

– If EfW destroys a resource, the organics are no longer available, is this sustainable?

– Bio-organics have other more beneficial uses if they can be economically/ergonomically applied.

– The Guideline should give direction as to when/where these options for composting are.

- Waste Management Hierarchy;

– How to maintain the policy framework that determines that we recycle, reuse, reprocess is not undermined by waste to energy.

– Maintaining resource use through waste minimisation development strategies.

– Fear of encouraging wastefulness.

- State, National, Local government policies and strategies.
- Appetite of EfW may produce a drain on recovery/recycle for reuse resources (organics).
- How do we maintain that the waste to energy plant is fed, if we get better at recycling reusing and reprocessing?
- Incineration vs. Landfill. Incineration can produce recyclable materials at **xxx** of process. (see green card 1)
- Landfill unless prior separation low recovery.
- Recycling and separation of waste efficiently.
- Must ensure EfW has its place firmly embedded in the waste management hierarchy – ie: reduce, recycle etc.
- Source specific options for waste disposal ie: plastics, garden waste, medical waste.
- EfW has no feedback mechanism to ensure waste minimisation at source. ie: how does it relate to NEPM for packaging?

• Air Pollution;
  - Air Pollution – how to guarantee technologically optimistic claims (site boundary condition standards a joke).
  - Separate plastics – is it practicable?
  - Emissions from EfW plant a concern, especially mercury, dioxins, PCB's.

• Environmental Emission Problems;
  - Prior to EfW plant dioxins produced were equal to zero.
  - After to Efw plant dioxins produced became greater than zero.

• Residual from EfW;
  - Residual waste disposal/options.
  - If we have waste to energy plants everywhere, we will still need a landfill for residuals from the waste to energy plant. Who will run these landfills?
  - With one technology "Brightstar" it seems that waste is not sorted first, resulting in slurry that gives rise to synthetic gas – the remaining is recyclable. My fear is that this "recyclable" fraction will not in fact be recyclable.
  - Ash Disposal (or residues) must be sustainable ie; (1) low or zero environmental effect and (2) Reuse potential for the recovery of metals/glass.

- EfW produces solid waste, which is highly hazardous – dioxins, furans, and heavy metals. How is this sustainable, and how do we deal with it?
- Various numbers quoted from 15-30% of original waste volume.
- The incineration of waste can render many elements more soluble (potentially greater problem if landfilled).
- Proposed uses as road base etc – what is the track record elsewhere?
- Need to ensure flexibility of commercial use of a residual product (and potentially variable and/or intermittent supply).
- Sale of by-products ie; electricity generated, gas, recyclables.
- Needs to be a balance against environmental, social and economic considerations.

Red Table

- Technology/Perceptions of Site Selection
  - Ease of connecting to power grid.
  - Can waste from old landfills be used?
  - How will public perceptions be managed/changed?
  - Public Perception of modern EfW Plants is dirty, emission producing incinerators and a 'blot' on the landscape.
  - Public Acceptability of Technology – compared with past resistance to incinerator technology.
  - Water for cooling the plant – where is this sourced from?
  - Cooling of this water does it get discharged at an ambient temperature back into initial receptor viz. rivers and creeks.
  - 1-3% of carbon from 160,000 tonnes, where will this be used or dumped?
  - Impact on residents living nearby, their health, and on the value of their property.
  - Local climatic variables ie: katabatic/anabatic winds.
  - Selection of site for power. Optimum site not selected. Eg; air corridors.
  - Selection requires and Environmental Impact Statement to select optimum site.
  - Is there any history of exceeding emission guidelines during plant failures/operating problems?
  - What happens to the waste if such a large facility goes offline? eg; equipment failures or staff strikes.

  - Loss of jobs to councils because of landfills.
  - Will this technology make other wastes eg; medical, more expensive to treat? (for example, by taking quarantine wastes).
  - Reliance on technology – risk of breakdown.
  - Down time - when plant is down, will the gas emission controls be exceeded?

- Economics
  - Cross subsidy; who subsidises TEST viz. xxx[2] xx[3] other infrastructure.
  - NOSKE will have access along Boyer Rd?**?**
  - Will EfW be cost competitive with landfills?
  - Making sure the EfW plant is cost competitive against the alternatives.
  - Sell benefits of environmental effective emission control.
  - Incineration may make land filling unviable, impacting on alterative disposal options – may become monopolistic.

- Environmental Benefits
  - Benefits of reducing landfill.
  - Residue; reducing groundwater contamination to landfills.
  - Diverting Municipal Solid Waste to EfW plant means that landfills can accept a higher percentage of inert waste, thereby naturally aiding the side rehabilitation at minimum cost. Therefore, there is an enhancement of the surrounding area/dwellings.
  - Control of groundwater seepage compared to landfill process.
  - Long term environmental benefits of avoiding the disposal of Municipal Solid Waste to Landfill.

- Environmental Problems;
  - Bench Mark Assessment requires an integrated baseline assessment of air, water and soil.
  - Longitudal assessment of the above criteria for a minimum of twelve months.
  - Longitudal assessments of wind regime at different heights
  - Longitudal assessments of plume fallout by air temperature & air gradients.
  - Public concerns about health risks of emissions.

  - Emission types and levels are unknown to public.
  - Waste Residues – what are they? and what are their impacts on soils and disposal. What are the amounts anticipated?
  - What happens to the ash? How contaminated is it?
  - Waste stockpile build-up?
  - Transport of waste; public nuisance with more trucks on the roads.
  - If plant exceeds emission controls what penalties will be imposed and by whom?
  - Who will oversee the emission control process – extended process, for example, by government independent from company.
  - Ongoing emission control – who will undertake & at what distance from plant.

- Security of waste stream

- Ability to generate waste stream without the loss of waste minimisation and recycling.
- Is there enough "fuel" available? ie: Southern Tasmania. How about elsewhere in Australia. Can the technology be adapted to different scales.
- Can enough waste be provided in Tasmania to make it economic?
- Encourage waste minimisation ie; waste is essential for TEST operation. Not necessarily a waste minimisation concept.
- Environmental concern may not be seen as important as economic in the future.
- May result in waste going to energy to keep the facility going rather than recycling or reuse.
- Is this the best option for energy generation?
- Recycling of waste- does it detract from government formulating legislation to achieve 97% recycling by industry.
- Loading eventually to true inter generational equity.
- This need not be the definitive answer viz we are consuming waste from this generation and using the energy in this generation.
- What will be the impact if there is less waste produced in the future?
- What are the impacts of fuel supply process on TEST efficiency resulting from variable supply?

Blue Table

- Bass Link
  - Role of local, state and federal governments now and in the future.
  - Role of landfills in a waste to energy scenario
  - Disposal of by-product eg; ash.
  - Is there enough ash to go around?
  - Community acceptance of facility (is it an incinerator?)
  - Wastes Accepted.
  - Removing of high fuel products eg; plastics, cardboard, paper?
  - Unknown disposal costs.
  - Disposal Fees – start up, on going fee structure, possible increase in fees once landfills close.
- Fees

– Glass/aluminium/steel recycled through process at transfer station, front end where possible and back end.

– Reduction in long term liability for councils.

– Definition of WEE – what is waste?, eligibility for REC

– Uncertainty in reaching tonne requirement and xxxxxxxx[1] energy production.

– Increase in waste streams; tyres, medical and oil wastes.

– Incentive to recycle removed.

- Opportunities

– Test appears to be unaware of current deferral activities across southern Tasmania.

– Unaware of pending opportunities

– Unaware of success of commercial interests (resource recover) in Tasmania moving beyond landfill xxxxxx[2] burners to deferral at source projects.

- Regulations
  - Regulations role in relation to infrastructure approval and development and the facilitation of the waste hierarchy.
  - Enforcement of regulations
  - Closure of Landfills and possible monopoly?

  - Role of DPIWE in setting environmental standards/guidelines.
  - Strategy/timeframe for closure of existing landfills.
  - Low Landfill Charges.
  - No incentive to deliver to TEST.
  - Removal of revenue stream.
  - Local Council loss of viability to loss of revenue.
  - Landfill rehabilitation costs. Who pays?
- Transport to Site
  - What is the distance to the waste source?