

Alternative Waste Technology -Overseas Trends and Advances

WasteMINZ Conference October 2013

Today's Presentation - AWT Overseas Trends and Advances

- ❖ Provide a high level introduction to Alternative Waste Technologies
- ❖ Discuss key drivers for implementation
- ❖ Factors that have determined success of AWT in Australia
- ❖ Using these primary factors - likely future of AWT in New Zealand



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The State of the Art



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The Technology

❖ Range of AWT

- Mechanical biological treatment (MBT)
- Anaerobic Digestion
- Aerobic Digestion and composting
- Advance Thermal Treatment (ATT)
- Incineration
- Mechanical Heat Treatment (MHT)



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New Zealand's Current Agenda

- ❖ Currently no AWT for unsorted domestic general waste
- ❖ There are good examples of source separated technology for organic waste (food and green)
- ❖ Legislative context sets stage for furthering AWT – WMA2008
- ❖ Current Central Government policies are not driver for AWT infrastructure development



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New Zealand's Current Agenda

- ❖ To understand why AWT not on NZ current agenda look at overseas examples
- ❖ Europe, East Asia and USA strong track record
- ❖ However conditions affect success and feasibility between countries and even regions
- ❖ Relevant insights may be gained from Australia's similar waste management operations

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Australian Experience

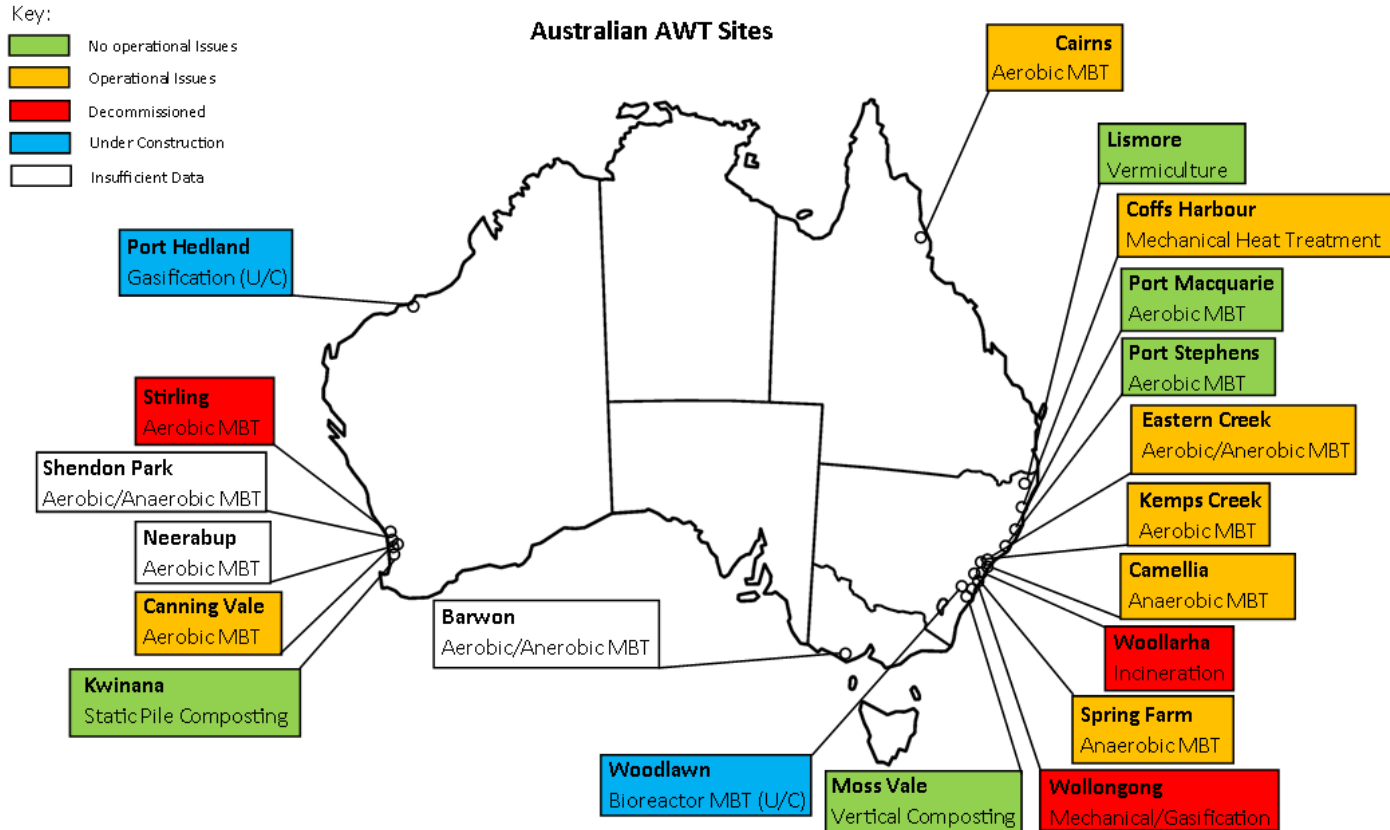
- ❖ AWT mostly used in larger urban areas
- ❖ Rural areas collect and process source separated materials with basic technologies
- ❖ Most favoured AWT – biological (anaerobic and aerobic digestion) and MBT over ATT
- ❖ AWT gaining recognition even though some notable shortcomings



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- ❖ Factors that influence feasibility of AWT – both financial and operational
 - Differing local waste streams
 - Facility maintenance companies unavailable locally
 - Engineering issues under-estimated for some plants
 - Some significant performance failures with associated costs
 - Environmental goals desirable – market fundamentals essential



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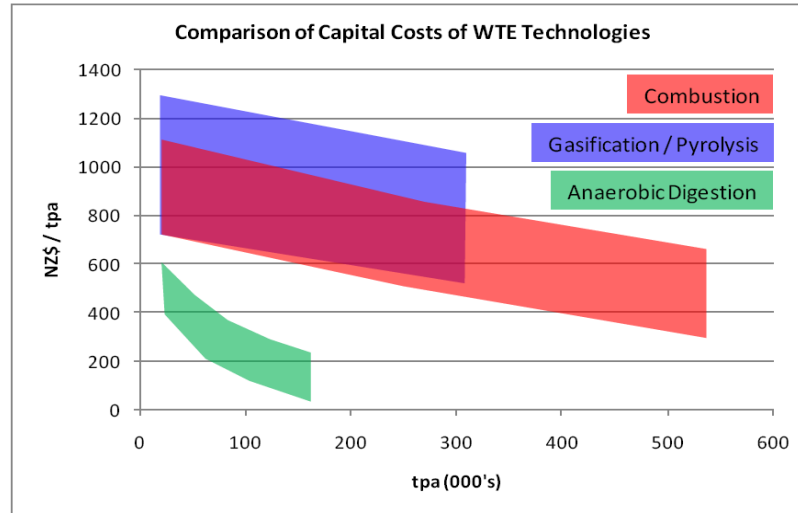
- ❖ AWT key drivers :
 - Declining availability landfill space
 - Legislation/national policy - waste levy requirements and obligatory waste reduction targets
 - AWT development incentivised by NSW waste levy distribution heavily geared towards supporting infrastructure development

- ❖ Economic value of outputs determine economic viability of AWT
 - Revenue from materials affected both by market fluctuation and quality of materials e.g. if compost quality does not meet market expectation result is poor sales – negative value

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Source: Costs of Incineration and Non-incineration Energy from Waste Technologies, SLR Consulting Limited, 2008

❖ Scale

- Reliance on homogenous feedstock - quality and volume
- Significant capital costs for establishment – often modular design
- Consequence – costs per tonne decrease significantly with increased tonnage - scale advantages also translate to opex costs

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In summary

- Notable issues with AWT but gaining momentum in Australia
- Demonstrates increasing faith in AWT or increasing acceptance of risks
 - Comparatively cheap landfill in Melbourne but serious steps to AWT



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NZ Context

- ❖ How does the future look for AWT in NZ?
- ❖ Barriers to AWT in NZ
 - Relative abundance of and low cost landfill
 - Lack of strong legislative incentives to drive AWT development
 - NZWS places increased effort further up waste hierarchy reducing material available for AWT facilities
 - Significant capital expenditure required – high level of risk
 - Economies of scale are crucial
 - Typically feedstock is unsorted meaning current collection methods would require change
 - Feedstock requirements may restrict to main urban areas

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NZ Context

- ❖ Economically AWT in New Zealand looks marginal in the short term
 - Significant capital investment with high associated risk - likely to be unappealing to councils
 - Abundance of landfill
 - Legislative and policy drivers to incentivise AWT development non-existent – required before economics “stack up”



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Conclusion

- ❖ How could this change?
 - Central Government may need to take the lead with targeted distribution of the waste levy
 - Funding support from private enterprise and councils required
 - Introduction of enforceable waste reduction targets to be eligible for levy funds

- ❖ Source separation more effective in conserving resources as opposed to highly complex and expensive “end of pipe” technologies

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