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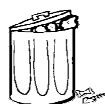
Waste Review Group

Report

November 2005



CONTENTS	PAGE
Glossary	4
Foreword	5
1 Introduction	6
1.1 Background	6
1.2 Terms of Reference	6
1.3 Methodology	7
2 Evidence	8
2.1 Technologies for the treatment of Municipal Solid waste (MSW)	8
2.2 MBT and other MSW Treatments in Germany	10
2.3 Potential Health and Environmental Impacts of Municipal Solid Waste Management	
2.3.1 Emissions from UK MSW treatment in perspective	11
2.3.2 Emissions to air	11
2.3.3 Effect of landfill sites	12
2.3.4 Effect of incinerators	12
2.3.5 Effect of composting sites	12
2.3.6 Quantifying health effects	13
2.3.7 Using Life Cycle Assessment to compare MSW treatments	13
2.3.8 Summary of conclusions on health and environmental impacts of MSW management	14
2.3.9 Implications for waste management in Milton Keynes	14
2.4 Procurement of the Waste Collection and Disposal Contract	14
2.4.1 Overview of the Milton Keynes procurement process	14
2.4.2 Cornwall County Council's procurement of Integrated Waste Management Services	16
2.5 Planning Issues	18
2.5.1 Sites	18
2.5.2 Waste Collection	20
2.6 The Report of the Citizen's Advisory Group on Waste	20
3 Conclusions and Recommendations	22
3.1 Conclusions	22
3.1.1 Waste treatment technologies	22
3.1.2 Health and environmental impacts of MSW management	22
3.1.3 Procurement	22
3.2 Recommendations	
3.2.1 Waste treatment technologies	23



3.2.2	Health and environmental impacts of MSW management	23
3.2.3	Procurement	23
3.2.4	Planning	24

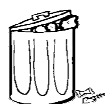
Appendices

- A Documents received by the Review Group**
- B Presentation by Tony Voong of Fichtner Consulting Engineers**
- C Technical information**
- D Presentation by Steve Moorhouse, Environmental Protection Team Leader**
- E Presentation by Narinjam Patel, Waste Procurement Manager, Cornwall County Council**
- F Presentation by Ian Prosser, Principal Planning Officer**
- G CAGoW Final Report**



Glossary of Acronyms and Contractions

AD	Anaerobic digestion
BPEO	Best Practicable Environmental Option
CAGoW	Citizen's Advisory Group on Waste
CO	Carbon monoxide
Defra	Department for Environment, Food and Rural Affairs
EPDC	Environment Policy Development Committee
LA	Local Authority
LATS	Landfill Allowance Trading Scheme
LAWDC	Local Authority Waste Disposal Company
MBT	Mechanical Biological Treatment
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
NMVOG	Non-Methane Volatile Organic Compound
NOx	Nitrogen oxides
OJEC	Official Journal of the European Communities
PPP	Public-Private Partnership
PPS	Planning Policy Statement
RDF	Refuse-derived fuel
WID	Waste Incineration Directive
WISARD	Waste: Integrated Systems Analysis for Recovery and Disposal



Foreword

The Members of the Waste Review Group are pleased to present its report and recommendations.

We wish to thank all those who gave evidence to us and to thank Defra for arranging for visits to sites using the latest Waste Treatment Techniques.

I would personally like to thank the Members of the Review Group and officers for the time and effort expended in compiling this report in a comparatively short period. In particular, thanks to Fran Bower for her research, the arrangements she made to get witnesses along to our meetings and for assistance in putting our report together in a clear format.

This has been a very interesting and illuminating exercise, which has illustrated the difficulties involved in procuring a contract, which will satisfy the needs of Milton Keynes for efficient refuse collection and disposal. We need to optimise recycling processes and satisfy all necessary legislation; we also need, very importantly, to reduce our current reliance on landfill to dispose of residual waste and reduce as far as possible the Council's liability to pay Landfill Allowance Tax. This liability will be reflected in turn in Council Tax levels. This, combined with a robust and transparent procurement process, will satisfy public concerns about all aspects of collecting and disposing of Household Waste.

It was our intention to inform rather than attempt to dictate the form of any contract. However, we are particularly concerned that the procurement process should be open and accessible to all interested parties, and that the public should be kept informed at every step along the way.

Councillor Bob Benning
Chair of the Waste Review Group



1. Introduction

1.1 Background

In autumn 2007, the Borough of Milton Keynes will have a new waste collection and disposal contract. This will be the largest contract that Milton Keynes Council has ever entered into.

In preparation for this, the Municipal Waste Management Strategy is to be consulted on and updated, with adoption expected at the end of 2005. The Strategy will form part of the information to potential suppliers to be sent out in early 2006. The Waste Development Plan is to be consulted on at the same time as the Strategy and should be adopted in February 2008. Issues that need particularly urgent consideration include: the policies and principles that make up the Strategy, targets for recycling and composting, options for future collection and disposal of waste and the Council's approach to designating sites for waste management.

The key reasons for updating the strategy and seeking to minimise landfilling of waste are

- a) the introduction of Landfill Allowances and the Landfill Allowance Trading Scheme (LATS), which could severely affect the Council by the imposition of fines up to £11m/year
- b) three years have passed since the strategy was last updated and there is a need to update in the light of new contracts
- c) the changes in population now projected for Milton Keynes
- d) other legislative changes
- e) new technological developments

The Council's Environment Policy Development Committee (EPDC) carries out research on relevant issues to inform the Council's decision making. It usually does this in full Committee, but sometimes by means of a small panel of Members, who can meet more frequently and focus on a single issue intensively and in some depth, receiving a wide variety of evidence. EPDC decided to carry out its research to inform the Waste Contract and the Municipal Waste Management Strategy in this way.

1.2 Terms of Reference

The following terms of reference were agreed at a special meeting of EPDC on 10 August 2005:

- The Review Group should be appointed on a 2:1:1 basis to consider the future of waste management in Milton Keynes.
- The Review Group should manage its own work programme and make suitable meeting arrangements.
- The appointment of substitutes to the review group be approved.
- In order to make a useful contribution within the time constraints of each procedure, the work on the Waste Strategy and Contract should be completed in the following order:



- Strategy - collection and treatment
- Tendering and the procurement process
- Land Use - strategy married with the Waste Local Plan
- An update should be provided to the Committee at its ordinary meetings on 7 September, 5 October and 3 November 2005.
- The Review Group's report should be submitted for consideration by the Committee at its ordinary meeting on 3 November 2005.

EPDC delegated full responsibility to the Review Group for its report at its meeting on 5 October 2005.

1.3 Methodology

The Review Group was made up of the following Members:

- Councillor Bob Benning (Chair)
 - Councillor Roger Bristow
 - Councillor David Hopkins
 - Councillor Jaime Tamagnini-Barbosa
- One other Member of each political group also received all documents and meeting notes and was hence able to act as a fully informed substitute as necessary.

The Review Group received evidence from witnesses including officers of the Council, technical consultants and an officer of another local authority. It provided regular feedback on what it had found to EPDC and to officers concerned with the development of the Waste Strategy and the Waste Local Plan and with the procurement of the Waste Contract.

The Review Group held three main meetings to hear evidence from witnesses. It met on five further occasions, including one conference call, to discuss its work. Members also attended the presentation of the Citizen's Action Group on Waste (CAGoW)'s response to the Council's consultation on waste management and went on a visit to Germany organised by Defra to see different waste treatment technologies in situ.

Table 1 contains details of main meetings (in bold), witnesses heard, visits made and key issues discussed.

Table 1. Evidence gathered

Date	Key issues	Witnesses
14 September	Waste Treatment Technologies	<ul style="list-style-type: none"> ▪ Tony Voong of Fichtner Consulting Engineers (Independent Consultant) ▪ Wolfgang Müller of Organic Resource Agency ▪ Steve Moorhouse, Environmental Protection Team Leader
4 October	Procurement of waste collection and disposal contract	<ul style="list-style-type: none"> ▪ Sue Mason, Waste Project Manager ▪ Andy Hudson, Chief Waste Management Engineer and Member of Chartered Institute of Waste



		Management ▪ Narinjam Patel, Waste Procurement Manager, Cornwall County Council
13 October	CAGoW consultation feedback	
18-20 October	Defra trip to Germany	
21 October	Planning issues	▪ Ian Prosser, Principal Planning Officer
3 November	Present report to EPDC	

A list of evidence received by the Review Group is attached as **Appendix A**.

2 Evidence

2.1 Technologies for the treatment of Municipal Solid Waste (MSW)

The Review Group received evidence from an independent consultant, Tony Voong of Fichtner Consulting Engineers, on available types of treatments for residual municipal waste and their advantages and disadvantages. The presentation is attached as **Appendix B** and more details on treatments and processes are provided within **Appendix C**.

Residual MSW can be treated by means of Mechanical-Biological Treatment (MBT), thermal treatment (including incineration, pyrolysis and gasification), steam autoclaving or by chemical means. MBT includes biodrying, composting, anaerobic digestion (AD) and stabilisation for landfill. Mechanical treatment may consist of any one of half a dozen techniques or a combination of several.

MBT results in several different outputs, depending on the type of MBT undertaken, and each has the potential to provide advantages or disadvantages: recyclables, refuse-derived fuel (RDF), stabilised biowaste and (from composting or AD) low quality compost. Some, such as RDF and compost, would seem to offer potential financial returns, but outlets are uncertain and if not found would mean that the material would have to be disposed of, probably to landfill and at a cost.

The independent consultant made the following general comments about incineration treatments:

- These provide a maximum contribution to LATS, landfill diversion and energy recovery targets
- They provide no contribution to recycling and composting targets
- In practice, they are the highest energy efficiency option in the short to medium term
- These treatments deal effectively with organic material and biohazards



- The Waste Incineration Directive (WID) enforces improved environmental performance; regulations are now far more stringent than they used to be, and emissions have improved correspondingly
- Hazardous flue gas treatment residues go to landfill.
- No waste process creates or destroys hazardous elemental contaminants such as chlorine, sulphur and heavy metals. These contaminants will end up being discharged to air, water, land or end up in the products
- Incineration has low public and political acceptability
- High planning risk. Waste management contractors will be reluctant to offer incineration, unless there is confidence that political and public support can be obtained.

There are perceived advantages of gasification and pyrolysis over incineration; in fact, some of these do not stand up well to close examination:

- Lower costs: The opposite is more likely to be true due to the increased number of process stages. Some technology and developers suppliers do not realise how much it can cost to build and operate commercial scale plants in the UK.
- Smaller footprint: This view has probably arisen due to inconsistent comparisons of plants with different capacities. In any case, much of the footprint is taken up with roads and other infrastructure that are generally common to most technologies. Any differences in the footprint of plant and equipment that are specific to particular technologies have only a limited impact on the overall footprint of the whole site.
- Lower emissions – possibly lower nitrogen oxides (NO_x) because of the way the fuel is burnt, but every incineration plant has to comply with the WID as a minimum.
- More publicly acceptable: this is true at present, but only relatively small plants have so far been built.
- Better at small scale: this is not true; they do tend to be smaller because they are generally unproven/uncompetitive at large scale. Many plants are modular and therefore flexible but this comes at a cost, as they become less competitive at higher capacities. Most clinical waste plants, which are much smaller than those processing MSW, use incineration rather than gasification or pyrolysis technologies. In general, large plants benefit from significant economies of scale. They offer lower cost and land requirements per tonne of waste and higher energy efficiency.
- Higher energy efficiency: the opposite is likely to be true for the foreseeable future. Incineration is more efficient at converting the chemical/fuel energy in the waste into thermal energy compared to gasification/pyrolysis. The remaining ash after incineration contains less unburnt carbon than the char generally left by gasification and pyrolysis.

Many gasification/pyrolysis technologies are not commercially proven for MSW. There are also problems with carbon in the bottom ash and simultaneous control of NO_x and CO emissions to air that are unique to pyrolysis and gasification.



In technical terms, the most promising way to obtain high overall energy efficiency (higher than incineration with a steam cycle) from a gasification/pyrolysis process is to burn the syngas in a conventional power station. However, wherever syngas is burnt it would have to comply with the WID, which would mean upgrading the existing flue gas treatment facilities, and this would not be an economic proposition.

Other heat treatments for waste include plasma gasification, which has unclear benefits over lower temperature gasification, and steam autoclaving, which is a net consumer of fossil fuels and which produces materials for which the outlets are unproven.

2.2 MBT and other Municipal Solid Waste Treatments in Germany

This evidence was presented by a representative of the Organic Resource Agency, a European consultancy and engineering group.

In Germany, regulations have prohibited the landfilling of untreated waste since 1 June 2005. Residual waste has to be treated either by incineration or biological treatment.

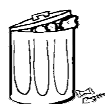
Energy should ideally be recovered from the high calorific fraction of residual waste, for example plastics. Pressure to use heat treatments is currently higher in the UK than in Germany, where there is more pressure to recycle. If the pressure to recycle were increased in the UK, technologies would emerge and the processing would become more economically viable.

Gasification and pyrolysis are currently neither economically viable nor technically available. Some of the technologies being developed in Germany have changed their focus from waste to biomass, which is being heavily promoted there; it is easier to treat and more promising in terms of economics.

Germany and Austria have taken quite a radical view and do not permit spreading of compost resulting from MBT on land, but it should not be excluded as a future option as technologies develop and autoclaving might permit the separation out of organic material.

Waste in the UK could rise by as much as 4% a year; this means that over a period of 20 years, waste installations could have to deal with twice as much waste as they do now. On the other hand, if UK waste were to be successfully minimised and reduced, large plants would be underused and uneconomical. Good planning and flexibility are essential.

Standards on emissions for MBT and in-vessel composting that would need to be met in Germany are very high. It is not necessarily true that MBT is an inexpensive option; it depends on the technological standards applied.



There is an uncertain market for RDF in the UK, but there is a UK technical committee on solid recovered fuel that seeks to further develop and standardise this product and create the conditions so that the market can respond to a product of quality. In Germany, there are coal power stations that will accept RDF, and in the UK too, there are cement kilns and coal-powered plants, including old ones that could be upgraded to take RDF and kept viable. Purpose-built RDF combustion plants could also be a viable option eventually.

2.3 Potential Health and Environmental Impacts of Municipal Solid Waste Management

The presentation by the Environmental Protection Team Leader was made with reference to the summary of the report for Milton Keynes Council on Potential Health and Environmental Impacts from Municipal Solid Waste Management (attached as **Appendix D**).

The Environmental Protection Team Leader stated unequivocally that an incinerator built locally would present no danger to the health of people living in Milton Keynes.

2.3.1 Emissions from UK MSW treatment in perspective

The first table sums up the nature of emissions from all MSW treatment nationally and compares these to total emissions of these chemicals. It can be seen that the treatment of waste is a minor contributor to total emissions. Emissions of Non-Methane Volatile Organic Compounds (NMVOCs) (which include Benzene, also shown separately), for example, are very harmful, but the amount produced by treating waste amounts to less than .02% of all UK emissions. As regards dioxins, about which many people are anxious, MSW treatment produces just 0.81 percent of total UK emissions. Bonfire night is a particular culprit for releasing dioxins and particulates.

2.3.2 Emissions to air

It is emissions to air that have the greatest potential for impact on health, as we all breathe air in. There are still gaps in our knowledge about these emissions, especially those from composting, MBT and AD, as Table 2 illustrates. Although the public appears to be highly anxious about emissions from MSW treatment, in fact these only make up 2.5% of total UK emissions to air (leaving aside emissions of methane and cadmium, both of which mainly come from landfill). Emissions to water from MSW treatment are an even smaller proportion of the whole.

Table 5 is a comparison of emissions to air from MSW management and other activities in the UK, putting it into perspective against these. 27% of all methane production is calculated to be from MSW management. The vast majority of that comes from landfills. The other unsatisfactory figure relates to



cadmium, of which 10% is said to come from MSW management, again mostly from landfill (from cadmium batteries etc.).

2.3.3 Effect of landfill sites

There has been much public anxiety about the effects of landfill sites in recent years. In fact, in the UK there has only been one study (Elliot et al. 2001) that has shown a consistent statistical relationship between living near landfill sites that accept MSW (as distinct from the more hazardous types of waste) and adverse health effects. This study says that living within 2km of a landfill site makes a variety of adverse health effects more likely, but does not show a causal connection nor that it is the landfill site that is to blame. The authors themselves are very clear on this, and that cause and effect have not been demonstrated. One of the authors has since admitted that they could well have got the same results if they had used municipal swimming pools as a focus. The Defra report from last year, which was drawn from a very large body of research, says: "We found that the weight of evidence is against any increased incidence of cancers in people living near landfill sites."

2.3.4 Effect of incinerators

The published research on incinerators is mostly based on older types of incinerator. Greenpeace reports include reference to Swedish incinerators operating in the 1920s. Table 6 shows historical emissions to air from incineration and illustrates how these have improved between 1980 and 2000. Dioxins and furans (both probably carcinogenic) have dropped from 180,000 to 400 units between 1990 and 2000. Nickel and mercury, a dangerous poison, have also dropped dramatically. The integrated pollution prevention control regime was introduced in that period and very much tightened up the regulations. Many of the old incinerators were closed down as a result.

If we are to consider emissions from incinerators, it is important that decisions are based on evidence of what is happening in the present, not the past. Even allowing for the fact that studies are primarily of incinerators that were older and gave out more emissions, none of them have clearly demonstrated negative health effects. In fact, there is one study of a modern incinerator in Spain (Gonzalez et al. 2000) that compared amounts of dioxins and furans in the blood (the best measure of exposure) of people living near to and further from it and found them to be the same.

After considering all the available evidence, the Government's independent advisory Committee on the Toxicity of Chemicals has concluded that: "any potential risk of cancer due to residency (for periods in excess of ten years) near to municipal solid waste incinerators was exceedingly low and probably not measurable by the most modern techniques".

2.3.5 Effect of composting sites



Commercial scale composting facilities have been shown to have some health hazards from bioaerosols, such as bronchitis, coughing and eye irritation, especially for those who work there. However, no link has been found with asthma. There is not very much information on this area, and more research is needed.

2.3.6 Quantifying health effects

Table 8, summarising data from the Defra report (Enviros et al. 2004), shows that there is less than one death brought forward per annum in the UK due to air pollution from MSW management. Deaths brought forward due to overall air pollution (such as traffic) are 11,600. Those brought forward by accidents in the home and by road traffic accidents are 4,300 and 3,409 respectively per annum.

The same sort of pattern is seen with hospital admissions and cancers; there will be about one cancer nationally every seven hundred years as a result of MSW management. (This will be the case, whatever waste management technique is used.)

McCarthy et al. (2005) have calculated that the extra traffic generated by a facility will contribute more to local air pollution than the incinerator will.

The Defra report concluded that no one option for MSW management can be recommended over others on health grounds, partly because the health impacts are so insignificant. However, they were unable to estimate the potential health effects of composting sites because of lack of quantitative information on emissions.

Table 10 summarises information from the Defra report comparing the health impacts of average examples of different types of waste management facility per 100 years. Table 11 does the same per 1,000 tonnes of waste. The only caveat is that there is very little information available on composting. All health impacts are very low indeed, especially when compared to deaths from other causes. As a society, we could easily avoid a great number of dangers, for example by banning fireworks and smoking, but we do not, nor do we avoid going into traffic; these are considered acceptable risks.

2.3.7 Using Life Cycle Assessment (LCA) to compare MSW treatment options

Milton Keynes Council recently engaged consultants to produce a “Best Practicable Environmental Option (BPEO) Report” (Entec 2005) using the LCA software WISARD (Waste: Integrated Systems Analysis for Recovery and Disposal) to evaluate the potential environmental impacts associated with different waste management options.

In this Entec report, any option that burns waste is shown to perform worse than any option that sends it to landfill (see Figure 1 in Appendix D). There



are many studies that show the opposite. It is not clear what data Entec fed into WISARD. Hogg and Mansell (2002), in their report for Greenpeace, which would not usually be pro-incinerator, obtain the opposite results, with landfill options showing as worse and burning waste as better (see Figure 2). It is important to interpret results of WISARD analysis very carefully and to understand what information has been fed into it.

Transport of waste material does have an effect on emissions, but as a proportion of total transport it is quite small and not really significant. This does not mean that the proximity principle can be discounted; there are also fuel and other costs associated with taking rubbish a long way to be processed.

2.3.8 Summary of conclusions on health and environmental impacts of MSW management

- Dioxin emissions from MSW incinerators are very small compared to those from domestic heating and cooking and bonfire night and fireworks. Therefore, to control dioxins it makes more sense to ban bonfires and fireworks, rather than incinerators, which are already strictly controlled. (Barbecues also give off polycyclic aromatic hydrocarbons, which are particularly harmful.)
- Further research is needed on emissions from composting, MBT and AD.
- Nevertheless, it is clear that MSW treatment is responsible for only a small fraction of harmful hazardous emissions compared to other activities taken for granted in our lives, like traffic and home cooking.
- All forms of MSW treatment give off emissions and the existing strict controls on these are necessary.
- Adverse health effects, especially from bioaerosols, have been demonstrated for some workers at MSW composting and MBT treatment facilities. Further research is needed.
- There is no definite evidence of a causal connection between living near a MSW landfill site and adverse health impacts.

2.3.9 Implications for waste management in Milton Keynes

- Windrow (open air) composting should be avoided closer than 250 metres from where people live.
- Biodegradable waste should not be landfilled; this causes large methane emissions and leads to global warming.
- There are no health or environmental reasons to prefer one properly designed and run type of MSW treatment over another. The effects are so small that the figures to compare them with are unreliable.
- Specifically, there is no health or environmental reason to rule out any form of modern thermal treatment of MSW.
- For these reasons, the choice of treatment method for MSW should be based on such factors as efficiency, planning considerations and economic attractiveness. This excludes landfilling and 'windrow' composting, as noted above.



2.4 Procurement of the Waste Collection and Disposal Contract

2.4.1 Overview of the Milton Keynes procurement process

Existing contracts expire in October 2007. These cover collection, treatment and disposal of waste and street cleaning. Continuity of service is essential, and the new contracts must meet the Council's statutory obligations, deliver its policies and priorities and respond to LATS targets.

The procurement project was formally initiated in February 2005. The procurement process has been set up using the software Prince 2, which provides a check on the speed, spending and order of the project's progress. The project structure includes the Corporate Director Environment, representatives of the Council, Project Board and Project Assurance officers. The Project Manager also works with nominated officers in other areas of the Council, such as Finance, Legal, Technical, Land/Planning, Communications, Risk Management and officers liaising with key stakeholders.

The following preparations for the letting of the contract have been carried out:

- Technical options appraisal: this was initially carried out with Buckinghamshire County Council.
- Financial options appraisal
- Waste Audit: compositional analysis of waste streams – to be completed this year
- Best Practical Environmental Option, which feeds into the Waste Strategy
- Health Impacts Review
- Study tours for key decision makers
- Industry consultation
- Waste Strategy update, including public consultation
- Legal, technical and financial advisers engaged

The following are now under way:

- Detailed collections and options modelling: the financial and technical consultants are working on waste flows
- Financial modelling: to show net present value
- Affordability analysis: how we can pay for it
- Contract packaging: do we integrate all services into one contract or split them into smaller lots?
- Output specification: the contract will not be prescriptive but will be output-based. The suppliers will work in their own way to the Council's policies and targets
- Industry day: to let the Council know what the industry thinks.
- The business case is currently being worked on; the purpose of this is:
 - to demonstrate that the decision to procure waste management services through a public-private partnership (PPP) route is based on a robust strategic and financial analysis of the options available



- to provide decision-makers with all the relevant project information in order for them to grant project approval. Project approval will depend on the Business Case clearly demonstrating that the preferred option best meets the Authority's objectives and requirements at an affordable cost
- Procurement options: a negotiated procedure is to be used, rather than an open or restricted one. This needs to be a partnership, with dialogue and exchange of information
- Risk: High level risks are the responsibility of specific people. They are not just being identified. Insurance may be taken out against some risks
- Contingency: planning is being carried out in case the new contract is not obtained in time; the Council may extend the existing contract temporarily, for example

The following stages will be completed, once the Waste Strategy has been agreed by Cabinet, which is planned for 20 December 2005:

- Business case to Cabinet
- Approval to tender to Cabinet
- Advertise tender
- Start of negotiation process, after several steps such as pre-qualification, outline proposals etc
- Best and Final Offer
- Final negotiations and contract award

Joint procurement is no longer being pursued with Buckinghamshire County Council, as incompatibility of policies has prevented full joint working. However, the Council has met with all of the waste disposal authorities across East Anglia and Oxfordshire. Each local authority is on a different timescale, with LATS beginning to have an effect at different times. Buckinghamshire County Council is letting its contract in 2010-2011, and Luton Borough Council has let its contract already. There is still the possibility of joint procurement going ahead with other neighbouring authorities in some form, and preliminary discussions are underway with Bedfordshire County Council.

Contract packaging (dividing up of services into different contracts) is important, in order to make ourselves as attractive as possible to as many suppliers as possible. Only bigger companies could take on all of the services. It costs a supplier approximately £1/2 million to bid, so they will cherry-pick. It might be logical for Milton Keynes to split the services into discrete modules. The industry seems to want a modular approach; vehicles last 7-10 years, and waste treatment plants last longer.

2.4.2 Cornwall County Council's procurement of Integrated Waste Management Services

The presentation given by the Waste Procurement Manager, Cornwall County Council is attached as **Appendix E**.



The six waste collection authorities in Cornwall deal with around three times as much waste as Milton Keynes between them. The Waste Local Plan was adopted in December 2002 and will operate up to 2012.

The Waste Strategy was predicated on provision of recycling infrastructure (materials recycling facility/household waste recycling centres), composting and single residual treatment. Options were kept open on the technology to be used and the number of facilities. Concerns included:

- Bidder capacity: the council acquired options on sites in order to level the playing field
- The geographical remoteness of Cornwall
- LAWDC, the Local Authority Waste Disposal Company, was a big local player, but was not allowed to bid because the objective was to transfer risk to the private sector.

The Integrated Waste Management objectives, which took a zero waste approach, followed this waste hierarchy:

- Minimisation
- Maximise recycling and composting: all segregated waste was to be recycled/composted. No target was included in the contract, but payment depended on the contractor recycling all that was separated at source
- Maximise recovery of residual waste – metals, aggregate and energy – to maximise its value
- Landfill disposal: to be minimised

Bidders were free to propose any technologies in any combination, but they had to be proven and to fulfil three criteria:

- There should be at least one reference facility anywhere in the world
- It should be operating in the configuration proposed for Cornwall
- It should be able to provide at least a year of operational data on municipal waste, demonstrating 85% availability

The tender evaluation process would determine the value for money solution.

Twenty companies originally expressed an interest on Industry Day. Eventually, four bid for Energy from Waste (one with gasification and three with conventional grate fired combustion), two for MBT with Energy from Waste (composting of organic waste with the residual going for Energy from Waste), one for MBT with drying of residual waste and Energy from Waste and none for MBT/landfill. Cornwall has no cement kilns and a policy of no importation or export of waste from the county. All companies opted for on-site thermal treatment. Council Members and officers regarded combustion and thermal treatment as the same thing.

The amount of biodegradable waste going to landfill in Cornwall would have risen steadily under the former contract, but will drop over the next few years as the new contract is implemented, and will do so dramatically, to an amount under the allowance allocation, once the Energy from Waste plant begins to operate.



Integrated Waste Management facilities will be sited with the incinerator in the centre of the county and on the rail network in a china clay industrial area. Other waste treatment facilities will be sited at points around the county.

The timetable for the Integrated Waste Management project in Cornwall is longer than in Milton Keynes:

- Official Journal of the European Communities (OJEC) notice: October 2002
- Long list (seven companies): February 2004
- Shortlist (three companies): April 2004
- Bid submission: December 2004
- Invitation to Best and Final Offer (two companies): March 2005
- Best and Final Offer submission: November 2006
- Preferred bidder appointment: January 2006
- Contract signature: June 2006

The delivery timeline means that the transfer, recycling and composting infrastructure will be in place by 2010 and residual treatment, with a three-year build period, will be operational by 2011/12.

Cornwall County Council has made a lot of information about its waste procurement process available on its website from the start. This is because the LAWDC was popular and provided jobs in Cornwall. That drove opposition to the project. The county council had to be open to counter this and defend its decision and to make sure that council Members had the information they needed to talk to the public.

2.5 Planning issues

The officer presentation on planning issues is attached as **Appendix F**.

2.5.1 Sites

Any new waste treatment facility should not undermine the waste planning strategy through prejudicing movement up the waste hierarchy. The planning process is at a very early stage, with the consultation on the Waste Plan document being carried out with the Waste Strategy.

Under previous planning procedures, the facilities would have been identified before consulting with the public, but now only the criteria for choosing a site are given in the first instance, to encourage the public to identify where they would wish to see these.

The Planning Policy Statement PPS10, Planning for Sustainable Waste Management, replaces Planning Policy Guidance Note 10 (Planning and Waste Management) published in 1999 and forms part of the national waste management plan for the UK. PPS10 states that waste planning authorities should consider:

- opportunities for on-site management of waste where it arises;



- a broad range of locations including industrial sites, looking for opportunities to co-locate facilities together and with complementary activities.
- In deciding which sites and areas to identify for waste management facilities, waste planning authorities should:
 - assess their suitability for development against each of the following criteria:
 - the extent to which they support the policies in PPS10
 - the physical and environmental constraints on development, including existing and proposed neighbouring land uses;
 - the cumulative effect of previous waste disposal facilities on the well-being of the local community, including any significant adverse impacts on environmental quality, social cohesion and inclusion or economic potential;
 - the capacity of existing and potential transport infrastructure to support the sustainable movement of waste, and products arising from resource recovery, seeking when practicable and beneficial to use modes other than road transport.
 - Give priority to the re-use of previously developed land, and redundant agricultural and forestry buildings and their curtilages.

The BPEO is no longer included in Government advice, although the inherent principles remain.

The Regional Waste Management Strategy considers in its policy W17, that sites for waste management facilities to sites should have the following characteristics:

- good accessibility from existing sites urban areas or major planned development; and
- good transport connections including, where possible, rail or water, and
- compatible land uses, namely
 - active mineral working sites
 - previous or existing industrial land use
 - contaminated or derelict land
 - land adjoining sewage treatment works
 - redundant farm buildings and their curtilages
- capability of meeting a range of locally based environmental and amenity criteria.

In the past, landfilling in Milton Keynes has taken place following mineral extraction. Other waste facilities, such as composting and recycling facilities that are located at the sites are tied in with the life of the landfill site. However, permanent facilities are now needed.

To fulfil the Proximity Principle, facilities will need to be located close to the source of waste. However, it is increasingly difficult to find sites in Milton Keynes. There is a lack of brownfield sites and land allocated to industrial use. The Council itself only owns four pieces of land allocated to waste management; three of these are Community Recycling Centres and the fourth is the MRF site, which is just over 2 hectares. There are only really two industrial estates, at Bleak Hall and Colts Holm Road, which contain such



users as concrete batching plants. Other employment areas are considered to be too large for smaller recycling facilities, generally expensive for all facilities and there would be difficulty in converting the existing buildings for waste use. The new employment areas are increasingly being sold for 'big sheds', storage and distribution and views have been expressed that waste facilities next to such sheds would devalue the sites. Also, land value here is high. There is also consideration of the proximity of residential properties.

Options for siting of facilities that might be considered include:

- The use of more smaller industrial estates
- The use of more rural locations, with the reuse of agricultural buildings, though there might be highway safety implications. The Government recognises the problems that will be faced by LAs in PPS10 and advises a more flexible view on countryside development and encourages consideration of other waste processes in vacant agricultural buildings in addition to composting.
- Permanent facilities where there will be more investment
- The safeguarding of existing waste management facilities

A recurring suggestion is that waste facilities should be located in the expansion areas before the rest of the development, so that people will be aware that the facility is there when they move to the area. There needs to be a spatial integration of waste management facilities, so that they meet and are alongside other strategies and aims.

Sites for facilities should be identified within 12 months, although the sites will not have gone through the planning system, and objections to them will be possible. Sites will be identified by area within Milton Keynes in the tendering process.

2.5.2 Waste Collection

New development needs to make sufficient provision for waste management and promote designs and layouts that secure the integration of waste management facilities without adverse impact on the street scene or, in less developed areas, the local landscape.

The reduction in household size is set to continue, both nationally and in Milton Keynes, with a dramatic rise in the number of single-person households. The average household size in Milton Keynes is expected to fall to just 2.17 in 2030. Because of this, it is likely that in the future houses will be smaller and that there could be more flats. Planning for waste collection needs to include storage of recycling boxes and bags and access for refuse collection. It is difficult to encourage participation of recycling schemes if there is not ease of access or storage.

Most of the population lives in the new city, which is laid out on a grid road system. The grid road system enables relatively easy traffic movement around the city and larger collection vehicles can be employed in most of the area. However this may not be the case in new developments, which may be



more compact. Layouts may need to be planned with collection vehicle access in mind, or smaller collection vehicles, and possibly more journeys, may have to be considered.

2.6 The Report of the Citizens' Advisory Group on Waste (CAGoW)

CAGoW was recruited from the Citizen's panel to produce a report to inform the development of the Council's new Waste Strategy. This took four and a half months of intensive research and resulted in a high quality report that was presented to the Council on 17 October 2005. The report is attached as **Appendix G**. The Waste Review Group highly commends this piece of work.

The report's comments and recommendations include the following:

CAGoW approves the Council's Zero Waste policy but feels that it will not be attainable without more resources at a local and a national level. It feels that incineration should be considered along with new waste treatments and that a public education programme is needed. The MK waste hierarchy appears to be effective, but lobbying at a national level is needed. The group does not feel that the hazardousness of waste is being reduced.

Overall good environmental practice and sustainability should not exclude thermal waste treatment, and transport of waste should be reviewed. Milton Keynes is mostly self-sufficient as regards waste treatment, but needs to plan for its growth and consider co-operation with neighbouring local authorities. The concept of integrated waste management is excellent, but recycling currently excluded materials should be explored, as should an inter-authority thermal waste policy.

Co-operation with all stakeholders and education in schools is essential. Key messages should include "More waste = higher local taxes" and the safety of advanced technologies. "New resident starter packs" promoting good waste practice should be provided.

Current regional recycling targets are ambitious and will probably be unachievable without larger and more advanced treatment facilities. They will need to be reviewed as Milton Keynes grows.

Food waste and compostibles should be diverted from the waste stream. Weekly collections are essential for participation. Compulsory recycling might be desirable, but should be sensitively implemented.

All available treatment options, including thermal and those, which have potential to generate power, must be considered. CAGoW believes that some form of thermal treatment is essential if long term targets are to be met. Long term planning for the growth of the city means that waste management sites can be in or near areas designated for expansion.



3. Conclusions and recommendations

3.1 Conclusions

3.1.1 Waste Treatment Technologies

- It is not practical to continue landfilling as we are, either in environmental or in financial terms.

MBT

- There is a serious risk that outlets may not be found for the RDF or low quality compost produced
- Biostabilisation for landfill may allow the achievement of LATS targets, but uncertainty about outputs and the definition of biodegradability could make planning and financing of facilities difficult

Thermal treatments

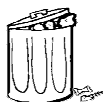
- Public perception of combustion could present a high planning risk
- Plasma gasification and steam autoclaving are commercially unproven on MSW, and the benefits of the former are unclear
- Chemical treatment is not suitable for the treatment of MSW in the UK

3.1.2 Health and Environmental Impacts of Municipal Solid Waste Management

- From the evidence provided to this Review Group, we conclude that a combustion waste treatment facility in Milton Keynes would present no danger to the health of people living here
- Everyday activities such as vehicle use and home cooking cause far more hazardous emissions than MSW treatment. Dioxin emissions from bonfires and fireworks greatly exceed those from incinerators
- A causal connection between living near a MSW landfill site and adverse health impacts is unproven.
- Adverse health effects from emissions, especially bioaerosols, from composting, MBT and AD are unclear, and further research is needed on these.
- All forms of MSW treatment give off emissions, and the existing strict controls on these are necessary.

3.1.3 Procurement:

- If the contract is split up into modules, it will have the advantage of opening it up to smaller contractors



- From the experience of other local authorities, we conclude that the tighter the timescale for procurement, the more likely it is that suppliers will take their time, to put pressure on us.
- If different services, such as collection and treatment of waste, are handled by different contractors, the management of the interface between them could be difficult.

3.2 Recommendations

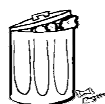
3.2.1 Waste Treatment Technologies

- There is no obvious best solution, when choosing a residual waste treatment; the choice depends on the weighting of the assessment criteria
- This Review Group is not opposed to any form of advanced thermal treatment
- Any technology selected should be shown to have run successfully for a suitable length of time
- Hard decisions are required, and it is not possible to wait indefinitely for future technologies to arrive

3.2.2 Health and Environmental Impacts of Municipal Solid Waste Management

- Windrow (open air) composting should be avoided closer than 250 metres from where people live.
- Biodegradable waste should not be landfilled; this causes large methane emissions and leads to global warming.
- Landfilling should be the option of last resort for any waste containing cadmium
- There are no health or environmental reasons to prefer one properly designed and run type of MSW treatment. The effects are so small that the figures, with which to compare them, are unreliable. Specifically, there is no health or environmental reason to rule out any form of modern thermal treatment of MSW. **For these reasons, the choice of treatment method for MSW should be based on such factors as efficiency, planning considerations and economic attractiveness.** This excludes landfilling and 'windrow' composting, as noted above.

3.2.3 Procurement:



- There should be an open day for bidders and all councillors plus a one day seminar for Council and parish council Members to attend with outside (neutral) experts on hand
- The Industry Day might be of interest to all Council Members and businesses, and the invitation to this should be as wide as possible
- All Council Members should be invited to take part in site visits to appropriate facilities, such as those in Hampshire and South Wales
- Openness about the whole procurement process, such as Cornwall and West Berkshire have displayed by putting information about their procurement on its website, would help the public to understand the Council's objectives
- The progress of the contract and decisions made by the Council should be publicised in frequent and detailed press briefings, web site briefings and also by means of a newsletter, which should be distributed through the local press
- An appropriate joint working or service sharing contract with a neighbouring authority would enable the building of an economically viable waste treatment facility by enabling a critical mass of waste to be treated and providing economies of scale
- The contract should oblige the contractor (or contractors, if the contract is split into modules) to achieve recycling targets
- It is important to be clear what each service module should achieve before attempting to integrate them in a contract package
- Both integrated and modular options should be required
- The contract should be drafted in such a way as to set out what this Council (and its partners, if applicable) wish to achieve and allow the procurement responder to set out the solution in terms of the technology (or blend of technologies) to be used

3.2.4 Planning:

- The Development Tariff must contribute to the provision of waste treatment facilities; urgent discussions with Milton Keynes Partnership Committee are required
- The waste treatment facilities need to be put in first, before other development, so that they are accepted.

