

## Residual Waste Project - selection of bidders to be Invited to Submit Detailed Solutions

<b>Cabinet Date</b>	16 December 2009
<b>Highways and Waste</b>	Councillor Stan Waddington
<b>Key Decision</b>	Yes
<b>Background Documents</b>	Residual Waste Contract – Competitive Dialogue Evaluation Framework, 19th November 2008. Residual Waste Proposed Business Case for PFI, Cabinet report, 23rd April 2008.
<b>Main Consultees</b>	Waste Project Board, Environment Scrutiny Committee, Gloucestershire Waste Partnership and stakeholders including Gloucestershire residents through the consultation exercise in summer 2008.
<b>Planned Dates</b>	The evaluation results of the Detailed Solutions stage are anticipated to be considered by Cabinet in late 2010 and contract award by Cabinet in Spring 2011.
<b>Divisional Councillor</b>	All
<b>Officer</b>	Jo Walker, Director: Environment (01452 426270; joanna.walker@gloucestershire.gov.uk)

<b>Purpose of Report</b>	To seek cabinet approval of the shortlist of bidders for the next stage of the residual waste procurement.
<b>Key Recommendations</b>	That Cabinet:-  1) notes and supports the progress made on the procurement of residual waste treatment for Gloucestershire's residual waste;  2) approve the shortlist of bidders to be Invited to Submit Detailed Solutions (ISDS) as set out in Annex 2.
<b>Resource Implications</b>	Resource implications remain within the resources and affordability approved by Cabinet on the 23 <sup>rd</sup> April 2008.

## MAIN REPORT CONTENTS

### Introduction

1. On the 23<sup>rd</sup> April 2008, Cabinet approved the start of the procurement of residual (non-recyclable) waste treatment facilities to help meet Gloucestershire's targets under European and UK legislation for reducing the amount of Biodegradable Municipal Waste (BMW) sent to landfill. Last year we sent 170,000 tonnes of residual waste to landfill. This will be impacted by household and population growth. Even with low waste quantities per person and good rates of recycling and composting, the amount of non-recyclable residual waste generated in the county in future years will exceed our landfill allowance. Whilst we have reduced our projections to reflect recent trends in waste growth this left-over rubbish will still be in the region of 150,000 tonnes per annum by 2040 when the contract expires. Therefore, a method of treating residual waste is required.
2. The Council was awarded £92m in Private Finance Initiative credits following the endorsement of the proposed business case by Defra in Autumn 2008.
3. The key objectives for the procurement are consistent with the Gloucestershire Joint Municipal Waste Management Strategy 2007, the Regional Waste Strategy 2004, and the national Waste Strategy for England 2007.
4. Cabinet approved (October 2007) a short list of five possible technology combinations as set out in para 11 . Subsequently Cabinet (November 2007) approved the use of an output specification which defines the Authority's desired outcomes of the process and the standards to be achieved, leaving the bidder to propose, through the competitive dialogue process, how the outcomes will be achieved.
5. Expressions of interest from the waste industry were invited by advertisement on 30<sup>th</sup> January 2009 in the Official Journal of the European Union. The Council advertised the contract on a technology and site-neutral basis thereby giving the market the best opportunity of bringing forward the most environmental, economical and technologically viable solution for Gloucestershire.
6. Following a successful bidders' day in February 2009, companies were invited to express an interest in providing that solution. Responses required details of technical expertise, financial strength and regulatory compliance which were assessed in accordance with predetermined criteria. These companies were reduced to a long list of ten who were invited to submit proposed solutions by 3<sup>rd</sup> September 2009. The purpose of this report is to present the results of the evaluation of the proposed solutions and seek approval of the selection of bidders to be invited to the next stage, Invitation to Submit Detailed Solutions (ISDS).

## **Exempt Information**

7. This report contains information in Annex 2 that relates to a competitive procurement process in progress and is commercially sensitive. Cabinet should therefore be invited to consider excluding the public during consideration of this information as prescribed by Part 1 of Schedule 12A to the Local Government Act 1972 (as amended).

## **Invitation to Submit Outline Solutions**

8. Ten companies qualified following the pre-qualification stage and were invited to submit proposed solutions. The ten companies were – Biffa, Cory, Covanta, Complete Circle (John Laing, Keppel Seghers and United Utilities), MVV Umwelt, SS4G (Cyril Sweet, Hills Waste Solutions and Bank of Scotland), Urbaser, Veolia, Viridor and Waste Recycling Group.
9. Bidders were allowed to submit up to two solutions. Eleven proposed solutions were received from eight bidders setting out how they proposed to treat Gloucestershire's residual waste.
10. The details of the solutions are commercially sensitive and therefore are not described in this report. However, overall the submissions showed that there is a high level of interest in the contract from bidders, and the solutions proposed are realistic and technically feasible. They would all result in BMW targets being met and achieve high levels of diversion of residual waste from landfill. To fund their solutions, bidders have proposed either project finance (investment from banks) or corporate finance (from their own balance sheet).

## **Proposed Solutions**

11. Cabinet approved (October 2007) a short list of five possible technology combinations. The core technologies contained within these combinations were; Energy from Waste, Mechanical Biological Treatment, Autoclave and Advanced Thermal Treatment. The core technologies proposed in a number of combinations within the proposed solutions from the bidders covered the following: Mechanical Biological Treatment /Mechanical Treatment, Advanced Thermal Treatment and Energy from Waste. These technologies are described in Annex 1.

## **Evaluation Process**

12. The solutions were evaluated using the Evaluation Framework for the Residual Waste Project agreed by Cabinet in November 2008. This was carried out by the project team including technical, legal and financial advisers. The evaluation has at this stage focussed on technical aspects of the solutions, the funding approach and proposed contractual structure. The evaluation process and the conclusions reached, have been independently reviewed by Audit who reported that the selection is fair and the process robust.
13. The scores per the Evaluation Framework were weighted 60% on environmental and technical factors, 20% on financial and commercial factors, 10% on legal factors and a final 10% on overall integrity of the bid.
14. The environmental and technical evaluation has assessed the operational, service and technical deliverability including the performance of the proposed solutions and how treatment products and residues will be recycled or disposed of, to determine if the proposal could offer a 'closed loop' solution. The environmental and technical evaluation also included criteria such as 'environmental control' and 'life cycle analysis'. This required the bidder to evidence emissions management and mitigation, their approach to continuous environmental improvement and the environmental and carbon performance of the proposed solution. Finally, the assessment also considered deliverability in terms of sites and planning.
15. The financial and commercial evaluation has assessed the indicative economic cost and affordability, the robustness of the funding solution and the commercial structure proposed.
16. The legal evaluation assessed the acceptance of risks in accordance with the standard Treasury contract for PFI projects.
17. The integrity evaluation assessed the consistency and cohesiveness of the proposed solution.

## **Short Listed Technologies**

18. The names of the bidders and core technologies contained within the short listed solutions will be announced at Cabinet by the Lead Cabinet Member, Environment. All the proposed solutions make use of Javelin Park but in some cases final processing takes place outside of the county.

## **Consultation**

19. The process and the results of the evaluation were discussed in detail with the Waste Project Board on 23<sup>rd</sup> November 2009, who supported the

recommendation, based on the evaluation of the number of bidders who should be invited to go forward to ISDS.

20. The recommendation will be discussed with both the Gloucestershire Waste Partnership and Environment Scrutiny Committee on the 8<sup>th</sup> December 2009.

## **Performance Management**

21. The key risks identified by the project are planning, affordability and bidder confidence in the procurement timescales. Planning approval is a key risk as it could delay the introduction of the facilities at a considerable cost to the Council. Affordability is a key risk as the project is dependent upon bank finance, the cost of which has been affected by the credit crunch. Finally bidders' confidence is a key issue because there are a number of other waste projects in procurement. Maintenance of the timeline and the ability to show a steady progress are key to maintaining bidder confidence.

## **Officers Recommendation**

22. That Cabinet:-

- a. notes and supports the progress made on the procurement of residual waste treatment for Gloucestershire's residual waste;
- b. approve the shortlist of bidders to be Invited to Submit Detailed Solutions (ISDS) as set out in Annex 2.

## **Next Steps**

23. The selected companies will go forward to ISDS and will be evaluated using the Evaluation Framework, applicable to this phase, for the Residual Waste Project as approved by Cabinet in November 2008. A dialogue process between the Council and bidders will then take place to develop these solutions. Dialogue will continue until the Waste Project Board is satisfied that the detailed solutions meet requirements and all substantive issues between the Council and bidders have been resolved. The dialogue will then be closed and bidders will be called to submit final tenders. A contract is expected to be awarded in Spring 2011.

<b>Report Title</b>	<b>Residual Waste Project - selection of bidders to be invited to submit detailed solutions</b>
<b>Statutory Authority</b>	Section 51 Environmental Protection Act 1990
<b>Relevant County Council policy</b>	Joint Municipal Waste Management Strategy
<b>Resource Implications</b>	This is covered within the body of the report.
<b>Sustainability checklist:</b>	
<b>Partnerships</b>	Gloucestershire Waste Partnership is a consultee.
<b>Decision Making and Involvement</b>	This is covered within the body of the report.
<b>Economy and Employment</b>	There may be local employment and economic development opportunities created through the contract.
<b>Caring for people</b>	The contractor would be expected to meet all relevant fairness and diversity principles.
<b>Built Environment and Landscape</b>	Issues for built environment and landscape will be developed further during the evaluation process commensurate with each bidder's solution.
<b>Education and Information</b>	An education centre could be constructed as part of the project.
<b>Equal Opportunities in Service Delivery</b>	Will be considered throughout the procurement process.
<b>Human rights Implications</b>	Not applicable.
<b>Consultation Arrangements</b>	Discussed in main body of report.

## **Annex 1**

### **Description of core technologies proposed**

#### **Energy from Waste (incineration)**

Energy from Waste (EfW) or incineration is a thermal process that uses oxygen under controlled conditions to combust (residual) waste. This is carried out at typically 850-1300°C and the hot gases generated from the combustion of the waste create heat energy that is used to produce steam and/or hot water.

The steam is mainly used to generate electricity using a boiler system. Steam and/or hot water can also be used for industrial processes or domestic heating in properties near the facility. The amount of electricity and heat produced varies according to the configuration of the facility.

When combusting waste, ash residues are produced. Bottom ash is recovered and can be used in the construction industry. Residues are also collected from the Air Pollution Control (APC) system. These are classified as hazardous and are generally disposed of to hazardous landfill. Metals can also be extracted from the ash and recycled.

EfW is a proven technology and the main form of treatment used in European countries such as Germany and Switzerland which also have high recycling rates. In 2008/9, 12.2 per cent of the UK's residual waste was incinerated with energy recovery (Defra, 2009). In 2007, there were 29 incinerators in operation processing residual waste in the UK (Defra, 2007).

With regards to health, safety and the environment, all EfW plants must comply with the Waste Incineration Directive (WID) which sets stringent emissions controls for any thermal processes used in the EU. This aims to minimise the impact from emissions to air, soil, surface and ground water on the environment and human health resulting from the EfW process. Any waste management facility will require an environmental permit to operate which is provided by the Environment Agency, the government body responsible for the regulation of waste facilities.

#### **Advanced Thermal Treatment - Pyrolysis and Gasification**

The principle technologies described by the term advanced thermal treatment are gasification and pyrolysis. These technologies recover energy in the form of heat, electricity or fuel (gas).

Pyrolysis is the thermal degradation of waste in the absence of oxygen. An external heat source maintains the temperature at between 350 to 850°C. It produces a solid residue (char, a mixture of carbon and non-combustible materials) and a synthetic gas (syngas, a mixture of gases) that can be converted into heat and electricity. Similarly, gasification is the thermal breakdown of waste with partial oxidation of the material typically at temperatures above 650°C. This generates syngas and a solid residue (ash).

The syngas can be converted into heat and electricity and qualifies as a renewable energy. Bottom ash is recovered and can be used in the construction industry. Metals are also recovered and can be recycled. APC residues are produced and are generally disposed of to hazardous landfill.

ATT plants are in operation in Europe, North America and Japan. There is a limited track record for Advanced Thermal Treatment (ATT) in the UK using mixed municipal waste. ATT processes are proven on other more homogeneous feedstocks (e.g. tyres, biomass) but there have been problems with the treatment of mixed municipal waste resulting in only a few ATTs treating residual waste. In many cases, ATT facilities are now being developed to treat refuse derived fuels from Mechanical Biological Treatment or autoclave<sup>1</sup> facilities, which produce a more homogeneous feedstock. These technologies lend themselves to smaller scale facilities and can be modular.

With regards to health, safety and the environment, all ATT processes treating residual waste must comply with the Waste Incineration Directive which sets stringent emissions controls for any thermal processes regulated in the EU (see Energy from Waste).

## **Mechanical Biological Treatment processes**

Mechanical treatment and biological treatment can be used separately or combined. When combined these technologies are collectively referred to as Mechanical Biological Treatment (MBT). These are pre-treatment technologies and can contribute to the diversion of municipal waste if part of a wider system including additional treatment stages.

Mechanical treatment processes include equipment to screen, separate, capture or shred the waste to extract dry recyclables (such as glass, stones, steel, aluminium), the organic fraction and residues.

The biological treatment process aims to breakdown and stabilise the organic fraction using either an aerobic (composting) or anaerobic (anaerobic digestion) treatment. This step can be limited to simply 'biodrying' the material which uses the heat generated by the micro-organisms to develop a refuse derived fuel. It can also be used to produce a compost-like material which is biologically stabilised. When anaerobic digestion is used, this produces biogas for energy generation.

---

<sup>1</sup> Autoclave is a pre treatment technology that steam cleans and sterilises waste under high pressure and temperature (120°C-170°C).



The main outputs are dry recyclables, a compost-like or organic output (CLO) and a Refuse Derived Fuel (RDF). The recyclables can be recovered and where markets are available can be recycled. Outlets must also be secured for any recyclables and will always be subject to market forces. A key issue, therefore, is who bears the risk for changes in recyclables prices. The CLO, if biologically stabilised can be landfilled or used on contaminated land. The RDF, which consists of mainly paper, plastics and sometimes organic material, can be thermally treated using EfW or ATT.

MBT is a proven technology process and is commonly used in Europe and the UK.. MBT plants are often used to provide RDF to EfW plants. The UK has 12 MBT facilities in operation treating residual waste.

Any waste management facility will require an environmental permit to operate which is provided by the Environment Agency, the government body responsible for the regulation of waste facilities. If the CLO was used on land (contaminated land), the State Veterinary Service would regulate compliance with the Animal By-Products (Amendment) Regulations 2009 which aims to protect animal health. In addition, the operator may require an exemption licence to allow the CLO to be used on contaminated land. If the organic material was sent to landfill the Environment Agency would also be responsible for measuring the stabilisation of the waste to calculate whether the Authority has met or exceeded its permitted landfill allowance under the Landfill Allowance Trading Scheme. The RDF would also need to be treated in a WID compliant thermal treatment plant.

This page is intentionally left blank