



mercia
waste management

Mercia EnviRecover

**PROPOSED DEVELOPMENT OF AN ENERGY FROM
WASTE FACILITY ON LAND AT HARTLEBURY
TRADING ESTATE, HARTLEBURY,
WORCESTERSHIRE**

SUSTAINABILITY STATEMENT

APRIL 2010

This report has been prepared in support of the planning application for the Mercia EnviRecover Development and has been prepared on behalf of Mercia Waste Management.



Camellia House
Water Lane
Wilmslow
SK9 5BB

CONTENTS

1.0	Introduction	1
2.0	Proposed Development	1
3.0	Sustainable Development	2
4.0	Approach To Sustainable Design	3
5.0	Conclusions.....	10

1.0 INTRODUCTION

1.1 This Sustainability Statement has been produced to accompany the planning application for the Mercia EnviRecover facility. It describes the development and provides a background to the importance of considering sustainability within the planning and development of such projects. The Statement explains how sustainability was a key element considered in the selection process for this facility and presents the principal design elements that contribute to delivering a sustainable waste management solution for Worcestershire and Herefordshire.

2.0 PROPOSED DEVELOPMENT

2.1 Mercia Waste Management (MWM) is proposing to meet the residual municipal waste management needs of Worcestershire County Council and Herefordshire Council through the development of the Mercia EnviRecover facility, a purpose built Energy from Waste facility, on land at Hartlebury Trading Estate, Hartlebury, Worcestershire. The planned opening date for the facility is 2014. The facility would have an installed electricity generating capacity of approximately 15.5 Megawatts (MW). It would generate electricity by way of a steam turbine which would be driven through the combustion of approximately 200,000 tonnes per annum (tpa) of residual waste (i.e. waste which is left after recycling and composting). Municipal waste is that waste collected and managed by, or on behalf, of local authorities.

2.2 The proposals comprise the construction of the Energy from Waste facility (with an integrated education / visitor centre), associated ancillary infrastructure and landscaping designed to help integrate the development into the site.

2.3 The operation of the proposed facility would comply fully with relevant UK Government and European Union (EU) legislation and policies. The principal processes to be carried out at the plant include the receipt, storage and combustion of non-hazardous residual waste, the generation of electricity and heat, and the use of emissions abatement equipment. In addition, there would also be the temporary storage of process residues on the site.

2.4 On the basis that the planning application is approved, the facility is programmed to open in Spring/Summer 2014. The facility would have an operational life of approximately 30 years, after which it could be refurbished.

2.5 Further details of the site and its surroundings, the process description and the plant and site layout are included in Chapters 1 and 5 of the Environmental Statement and associated Figures.

3.0 SUSTAINABLE DEVELOPMENT

3.1 The overarching principles of sustainable development are set out in a number of government documents; a key publication that defines the UK's approach to sustainable development is the UK Government Sustainable Development Strategy 'Securing the Future', March 2005. This document sets out that the goal of sustainable development for the UK government should be:

'pursued in an integrated way through a sustainable, innovative and productive economy that delivers high levels of employment, and a just society that promotes social inclusion, sustainable communities and personal well being, in ways that protect and enhance the physical environment and optimise resource and energy use'

3.2 The message of sustainable development and how this is to be integrated into the planning system is set out in national Planning Policy Statements (PPS). The principal PPS that relates to sustainable development is PPS1: Delivering Sustainable Development. This document sets out the vision for planning in England and the key policies which will underpin it. PPS1 makes clear that sustainable development is at the heart of the planning system and states that:

'sustainable development is the core principle underpinning planning...National planning policies and regional and local development plans provide the framework for planning for sustainable development. This plan led system plays the key role in integrating sustainable development objectives. Where the development plan contains relevant policies, applications for planning permission should be determined in line with the plan'.

3.3 The Mercia EnviRecover facility is being proposed in order to deliver a sustainable waste management for Worcestershire and Herefordshire and as such conforms to the requirements of PPS 10: Planning for Sustainable Waste Management. This document describes how waste management solutions are to be delivered through the planning system in a sustainable manor, PPS10 states that :

“ the overall objective of Government policy on waste is to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Through more sustainable waste management, moving the management of waste up the ‘waste hierarchy’ of reduction, reuse, recycling and composting, using waste as a source of energy, and only disposing as a last resort the Government aims to break the link between economic growth and the environmental impact of waste.”

3.4 In addition to the national policies as set out above there are a number of regional and local policy and strategy documents which set out the planning requirements for sustainability. In the context of the Mercia EnviRecover proposals this includes:

- Saved Policies SD1 – SD6 and SD8 – SD 9 of the Worcestershire County Structure Plan
- Policies SR1 – SR4 of the emerging West Midlands Regional Spatial strategy (Phase 2 Revision)
- The West Midlands Sustainability Checklist for Development (referenced within Policy SR3 of the emerging RSS).

3.5 MWM has taken the requirements of these national, regional and local policies and other relevant sustainability criteria into consideration in the siting and design of the Mercia EnviRecover facility. The approach taken during the design process is set out in the following sections.

4.0 APPROACH TO SUSTAINABLE DESIGN

4.1 As outlined above it is important to ensure that development takes into account sustainable design principles and understands the broader sustainability goals set out in national, regional and local policy. The following section provides a summary of the elements of the scheme development that contribute to sustainable development values set out in the national, regional and local policy documents.

4.2 Sustainability has been an integral element of the project development from the start of the design process. One of the initial phases of the project was to identify the most suitable residual waste management solution for the two authorities. This was determined through identification of potentially suitable treatment options, the

initial process involved screening the options against environmental, financial and risk, and social criteria; the three core elements of sustainable development.

- 4.3 Assessment of the different options against the environmental criteria was undertaken using the Environment Agency's life cycle assessment tool: Waste and Resources Assessment Tool for the Environment (WRATE). The assessments against the remaining criteria were undertaken using both quantitative and qualitative appraisal methods. The criteria used were:

Environmental Criteria

- Resource Depletion
- Air Acidification
- Greenhouse Gas Emissions
- Freshwater aquatic ecotoxicity
- Eutrophication

Financial and Risk Criteria

- Financial Costs
- Reliability of Delivery
- Planning Risk
- Compliance with Policy
- Flexibility
- End Product Liability

Social Criteria

- Transport
- Health

- 4.4 The findings of this assessment identified that the three most preferable technologies were energy from waste (Combined Heat and Power), energy from waste (electricity generation only) and autoclave. An autoclave facility had previously been granted planning permission at the site, however, mainly due to the lack of an outlet for the 'fibre' / compost-like output produced by this technology, this option has not proved deliverable. As such an Energy from Waste facility was deemed to be the most sustainable residual waste management option for the two authorities.

4.5 In order to further examine the sustainable design credentials of the Mercia EnviRecover energy from waste facility, this section of the report has been divided into nine topics relating to sustainable development:

- Energy;
- Climate Change;
- Waste and Materials;
- Water;
- Transport;
- Local Employment;
- Natural Environment;
- Built Environment and Land Use; and
- Community.

Energy

4.6 One of the major benefits of the Mercia EnviRecover facility is the ability to recover energy from the combustion of the waste by way of electricity and heat production. The plant will have a generation capacity of 15.5MW, a proportion of the electricity generated will be reused in the operation of the facility with the majority of the electricity will be exported to the local grid.

4.7 A proportion (55-65%) of this energy produced by the plant is classified as being renewable energy. This relates to the combustion of the biodegradable component of the waste that provides the fuel to ultimately generate the energy. However, irrespective that only a proportion of the energy is truly renewable, EfWs are identified as renewable and / or low carbon energy supply infrastructure (within the glossary of the Planning Policy Statement 1: Supplement on Climate Change).

4.8 The facility also presents a real opportunity for future Combined Heat and Power (CHP) development. The plant will be 'CHP ready' and will be equipped with steam extraction points to allow low pressure steam to be supplied directly to consumers, or to be condensed in heat exchangers in order to provide hot water. Waste heat will also be used within the facility; potential uses of this heat include re-circulation in the incineration process, supply of central heating, hot water for administrative and visitor areas including offices, mess rooms and wash rooms.

-
- 4.9 Due to the location of the development site, a strong prospect of heat off-take in respect of both existing and potential future heat users in the local area exists. This will be an operational objective of the plant. If the potential for CHP is realised this will further contribute to renewable energy benefits of the facility.
- 4.10 The building design will conform to the requirements of Part L of the Building Regulations ensuring high standards of energy efficiency. Cladding materials will be selected with reference to the BRE's Green Guide to Specification (BRE, 2002) to ensure that the materials used meet suitable environmental and sustainability standards.
- 4.11 Introduction of energy saving design will be of particular importance in the design of the office space and visitor centre. At these locations energy efficiency will be achieved through use of high insulation materials, glazing and use of power saving measures such as intelligent lighting systems etc.
- 4.12 One of the by-products from the facility will be bottom ash. The bottom ash will be taken to a specialist bottom ash recycling contractor who will reprocess the ash into a recycled aggregate therefore avoiding the requirement for quarrying activities and the associated energy usage.
- 4.13 Daylighting and natural ventilation of the various buildings has been maximised in order to reduce mechanical cooling requirements and also provide natural lighting to workers at the facility.

Climate Change

- 4.14 As described above the Environment Agency's Waste and Resources Assessment Tool for the Environment (WRATE) was used to evaluate the impact on a number of environmental indicators. One of these is the Global Warming Potential (GWP), expressed in tonnes of CO₂ equivalent per annum. The assessment estimates CO₂ emissions generated as a result of construction and operational impacts, transportation impacts and the displacement of power generation from fossil fuel power stations. The result of this assessment has shown that implementing the Mercia EnviRecover facility as opposed to not operating the plant would result in a net annual reduction of 7,361 tonnes of CO₂ equivalent per annum i.e. the greenhouse gas emissions associated with constructing and operating the facility

would be more than offset by the electricity generation displacing fossil fuel derived electricity.

- 4.15 In addition, and not included with the 7,361 tonne CO₂ equivalent reduction, there would in reality be further significant greenhouse gas reduction associated with diversion of waste from landfill. This relates to the avoidance of methane and CO₂ leakages from landfill operations, noting that methane is approximately 24 times more effective at trapping heat within the atmosphere than CO₂.

Waste and Materials

- 4.16 The facility will make a major contribution to the sustainable waste management needs of Worcestershire and Herefordshire by providing a facility for dealing with the residual waste needs of the two authorities. The facility will have the capacity to deal with approximately 200,000 tonnes of residual municipal waste per year which would otherwise be dealt with by disposal to landfill.
- 4.17 As mentioned above one of the by-products of the combustion process is bottom ash, this will be taken to a specialist bottom ash recycling contractor who will reprocess the ash into a recycled aggregate therefore avoiding the need to landfill the bottom ash. Recycling will also reduce the requirement for quarrying activities; conserving mineral resources and avoiding the energy usage associated with quarrying operations.
- 4.18 A Site Waste Management Plan will be developed as part of the detailed design and construction phase. This plan will outline measures to ensure that waste arisings from construction activities are minimised; waste streaming will be implemented on site to ensure that recyclable materials are separated and taken to appropriate waste recycling facilities.
- 4.19 A major element of the construction process will be the excavation associated with the reduced level development platform. This excavation will result in approximately 60,000m³ of Mercia Clays; a number of potential users of this material have been identified, these are described within Chapter 5 of the ES. Two of the potential users are the brickworks that operate on the Hartlebury Trading Estate and Waresley Landfill. The use of the material at these locations would minimise transportation impacts and also reduce the quarrying that would be otherwise have been required to source this material.

Water

- 4.20 The site is categorised as a Zone 1 (Low Probability) Flood Risk Area i.e. it does not lie within an area at risk from tidal or fluvial flooding, with a statistical return period of more than 1 in 1000 years (i.e. <0.1% probability).
- 4.21 A surface water drainage design has been undertaken that includes the provision of attenuation ponds that restrict surface water flow from the site to a Greenfield runoff rate.
- 4.22 The design of the building will include a rainwater harvesting system reducing the use of mains water supplies. The rainwater will be used in the quenching of bottom ash, flue gas treatment and potentially within staff toilet facilities. Water efficiency measures will also be included in the design of the facility to reduce dependency on main water, these measures may include the following:
- Low/dual flush WCs;
 - Low water use taps;
 - Flow control on hand wash basins; and
 - Water metering.
- 4.23 Impacts on water quality have also been taken into account through the provision of petrol interceptor units within the surface water design. These units will enable any spills of fuel, oil or chemicals to be controlled, ensuring that polluted surface water runoff does not enter the watercourse into which site runoff is discharged. Settlement lagoons are also planned for the construction stage to ensure that sediment laden water is not discharged into the watercourse.

Transport

- 4.24 Due to the nature of this development the site is located away from urban centres and as such the potential for use of public transport and cycles is limited. However, the facility does include provision of a cycle store and employees will be encouraged to use sustainable transport alternatives to the private car.
- 4.25 An analysis of the transport sustainability was undertaken to inform the site selection, this analysis identified that the Hartlebury Trading Estate site provides excellent opportunities to minimise waste haulage, being located in a central

location to the main County waste arisings (Worcester, Wyre Forest, North Wychavon, Bromsgrove and Redditch) and close to the County strategic road network.

Local Employment

- 4.26 The plant would provide employment for approximately 42 people. Approximately, 12 of these will be office based, the majority of the 30 non-office based employees would be skilled operatives (electricians/fitters/crane operatives) or technical engineers (control and plant).
- 4.27 The construction of the Mercia EnviRecover facility will also provide temporary employment during the 35 month construction period.

Natural Environment

- 4.28 The development will not have a significant effect on any statutorily protected wildlife sites or protected species. Whilst the development will result in the loss of some locally valuable trees and scrub habitat the landscape design includes mitigation and compensation measures e.g. native tree and shrub planting, species rich grassland and planting of the attenuation ponds with marginal vegetation.
- 4.29 Effects on the natural environment were considered in the design of the building layout. The orientation and positioning of the buildings were designed to avoid the loss of a stand of mature poplars on the site that were recognised as having ecological value. These trees have the potential to provide habitat for bats, a protected species, and also provide an important buffer for Middle Covert, a locally designated wildlife site. As such their protection on the site was considered an important design constraint. Further details of the ecological impacts of the project are included in Chapter 8.0 of the Environmental Statement.

Built Environment and Land use

- 4.30 The Mercia EnviRecover facility is located within an existing Trading Estate and is surrounded by other industrial structures. The site is located on designated employment land and is currently a derelict development site which does not offer any formal amenity value in its current state.

-
- 4.31 The building design has been developed to reduce the impact on the local landscape and sensitive visual receptors. This includes the decision to excavate an area of the site to provide a reduced level development platform on which to sit the Main Building. This put the service level of the Main Building at 8m lower than the existing site level, making a significant contribution to minimising the overall visual height of the facility.
- 4.32 No archaeological features of interest will be disturbed by the development.

Community

- 4.33 A visitor centre will form part of the facility. This will provide a valuable local resource for schools and youth groups. The centre will educate visitors on the operation of the facility, describing the process that are undertaken at the plant and why facilities such as the Mercia EnviRecover plant are an important element of the waste management process. The visitor centre will also provide the opportunity for the local community to learn about and understand issues associated with climate change, generation of renewable energy and how waste is managed and dealt with in the UK.

5.0 CONCLUSIONS

- 5.1 The Mercia EnviRecover facility has been developed to provide a sustainable solution to meet the residual municipal waste management needs of Worcestershire and Herefordshire. The proposed solution will provide a renewable energy source, generating electricity through the combustion of approximately 200,000 tonnes per annum (tpa) of residual waste that would otherwise be disposed of via landfill. The facility is a fully CHP enabled plant and as such offers good prospects for supply of heat energy to existing and future heat users within and around Hartlebury Trading Estate.
- 5.2 The design of the building integrates sustainable design ideas to reduce water and energy usage and has sought to reduce impacts on the local environment.
- 5.3 The facility will provide local employment and will also include a visitor centre that will provide a valuable facility for local schools and youth groups.

5.4 The proposal integrates wider sustainability needs relating to the natural environment, local communities and economic growth. As such it is believed that the proposal meets the aspirations of PPS1 and PPS10 and local planning policies through the delivery of a sustainable development solution.