

## **APPENDIX NR10: Residual Waste Treatment Capacity - Quantitative Need Assessment**

### ***Introduction***

1. In this Appendix I look at the likely level of residual waste arisings within the West Midlands region (within which the EnviRecover facility is located) and those within Worcestershire and Herefordshire. I consider both MSW arisings C&I waste, both of which can be processed within the plant. In addition I consider whether the capacity of the EnviRecover facility (200,000 tonnes per annum – tpa) is appropriate in light of the predicted residual waste arisings.
  
2. The prediction of future waste arisings is not a precise science. With regard to municipal solid waste (MSW) the UK has seen arisings constantly increase, in line with population and housing growth to 2007. The Waste Strategy for England (WSE) 2007 (Box 1.3) states: *municipal waste increased at about 3.5% per year up to the millennium but average growth over the last five years has been less than 0.5% per year*. Since 2007 MSW arisings have generally decreased. Based upon data and my experience throughout the UK (including within Worcestershire and Herefordshire), this is due to a combination of factors which include:
  - The effect of the ongoing recession from 2007 (and the consequential slow down in house building rates);
  - Local authorities reducing their trade waste collections (a component of MSW) in order to reduce their Landfill Tax and LATS liabilities;
  - The effects of legislation and waste minimisation initiatives (including such things as tighter operational control on Household Waste Sites to reduce misuse by traders, and cross-boundary use).
  
3. There is no certainty that the recent short term reduction in MSW arisings will buck the far longer term patterns of waste growth. Conversely, there is no evidence that there will be a return to historic rates of MSW growth. Notwithstanding, data on current and historical levels of MSW and its management is generally good and there are clear targets relating to its future management.

4. With regard to commercial and industrial (C&I) waste, it is generally accepted that the data is less well recorded than MSW, but the overall quantities of arisings are definitely greater in this waste stream.
5. Within this Appendix I make reference to the terms municipal waste, household and residual waste, together with commercial and industrial waste. Municipal waste (or municipal solid waste – MSW) is traditionally all waste managed by or managed on behalf on local authorities. However, DEFRA is in the process of redefining it in accordance with EU legislation. The current position is set out on DEFRA's web site<sup>1</sup>, which states:

*Previously the term 'Municipal Waste' as used in the UK was used in waste policies and nationally reported data to refer to waste collected by local authorities. In fact the definition of municipal waste as described in the Landfill Directive includes both household waste and that from other sources which is similar in nature and composition, which will include a significant proportion of waste generated by businesses and not collected by Local Authorities. In 2010, negotiations with the EU Commission and consultation with the waste community redefined national targets and the effects of this change in relation to the EU Landfill Directive targets. The review of waste policies will clarify any consequences for the Landfill Allowance Trading Scheme.*

*To remove ambiguity, in the future references to 'municipal waste' will refer to the new definition. Therefore there is a need to define a new term to describe the data collected by WasteDataFlow. The agreed terminology arises from Defra's response to the 2010 consultation on meeting the EU Landfill Diversion Targets in England.*

6. Notwithstanding, for the purposes of the EnviRecover application (and in accordance with the wider public understanding of the definition) the previous definition of municipal waste has been adopted i.e. waste collected by local authorities.

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<sup>1</sup> <http://www.defra.gov.uk/statistics/environment/waste/la-definition/>

7. Household waste includes most municipal waste (the definition we have adopted), but not all. A detailed description of household waste can be found on the Audit Commission's web site, reproduced as my Annex A <sup>2</sup> (to this Appendix).
8. Residual waste is defined by the Audit Commission (my Annex A) as: *Residual waste is any collected household waste that is not sent for reuse, recycling or composting.* Thus, in accordance with the waste hierarchy, residual waste is that which remains after the appropriate efforts have been made to reduce, recycle or compost the waste, bearing in mind the prevailing local circumstances. In this regard, in terms of municipal waste, the relevant Councils i.e. Worcestershire and Herefordshire as Waste Disposal Authorities (WDAs) and the seven Waste Collection Authorities (WCAs) have extensive infrastructure aimed at minimising residual waste. This comprises:
- Segregated household kerb side collection of a wide range of recyclables. These are sent to the EnviroSort Materials Recycling Facility (MRF) for separation and bulking. EnviroSort is a £15 million state of the art MRF with a processing capacity of over 100,000 tonnes per annum (tpa). The extensive range of recyclables that it processes is listed on the facilities web site<sup>3</sup>.
  - A network of 16 Household Waste Sites all of which have a wide range of recyclables containers, accepting typically 27 different recyclables (see Severn Waste Services web site<sup>4</sup>).
  - Some Districts offer green waste collection services, although this is also offered at all of the 16 Household Waste Sites.
  - Numerous 'bring sites' throughout the two authorities.
9. The reality is that the municipal waste regulatory regime (statutory targets etc) ensures that waste is recovered before being subject to 'other recovery' or disposal. However, both municipal and commercial and industrial waste is subject to economic drivers. The combination of economic incentives to recover materials for recycling and the requirement to pay gate fees for

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<sup>2</sup>Audit Commission National Indicator (NI 191) <http://www.audit-commission.gov.uk/localgov/audit/nis/Pages/NI191residualhouseholdwasteperhousehold.aspx>

<sup>3</sup>[http://www.envirosort.co.uk/what\\_can\\_i\\_recycle.htm](http://www.envirosort.co.uk/what_can_i_recycle.htm)

<sup>4</sup>[http://www.severnwaste.com/activities\\_wastesites.asp](http://www.severnwaste.com/activities_wastesites.asp)

each tonne of waste delivered for treatment or disposal (plus Landfill Tax for the latter) are such as to ensure that as much recyclable and other material as practicable would be recovered from the waste streams prior to treatment as residual waste. To send recyclable materials to a residual waste management facility would simply be poor business and financial management. As a consequence, I conclude that any waste treated at the EnviRecover facility would be residual.

### ***Regional Waste Management Position***

10. Notwithstanding that the Regional Strategy for the West Midlands currently remains part of the statutory development plan, it is clearly the Government's intention to scrap Regional Strategies and has been for almost 18 months. Irrespective of the future position, the waste management data within the Strategies is informative about waste arisings, waste management capacity and the need for various types of new waste facility.
11. This is self-evident from the Steve Quartermain Letter to Chief Planning Officers 6th July 2010 (see Appendix NR4). When answering the question: *"16. How do we establish the need for waste management without Regional Strategy targets?"* He responds: *"For the transitional period this will continue to be the data and information which has been collated by..... bodies who currently form the Regional Waste Technical Advisory Bodies. We intend for this function to be transferred to local authorities in due course"*.
12. As a consequence, it is presently of continued relevance to understand the regional waste management picture.
13. The West Midlands Regional Spatial Strategy (WMRSS) Policy WD1 sets out the waste management targets as presented in SoCG 1. These targets pre-date the more ambitious targets in WSE 2007 and thus are of limited value.
14. Part D of Policy WD2 indicates that waste planning authorities should take into account the needs outlined in Table 4 - for waste treatment and landfill

capacity generated by each sub-region. Table 4 indicates that for the West Midlands there will be a requirement for municipal waste recovery facilities with a combined capacity 1,940,000 tpa. In terms of the Worcestershire sub-region there will be a requirement for municipal waste recovery facilities with a capacity of 164,000 tpa. In Herefordshire there is requirement for facilities with a capacity of 45,000 tpa. The combined municipal waste recovery capacity requirement for the two authorities is therefore 209,000 tpa.

15. Part E of Policy WD2 indicates that local authorities should seek agreement with neighbouring authorities to make provision in their plans to meet the need identified in Table 4. Finally, paragraph 8.90 states: *“there will.... be a significant need for additional waste management recovery and treatment facilities throughout the Region”*.
16. As set out in SoCG 1, it is agreed that the Mercia EnviRecover proposal is in general conformity with the overall aims of the WMRSS and noted that this conclusion is supported by the comments received from the West Midlands Leaders Board (when consulted on the planning application) that notes that the proposal is in general conformity with the existing Regional Strategy.
17. The emerging RSS presents more contemporary data. The Phase 2 Revision to the WMRSS proceeded to an advanced stage, having been through an Examination in Public (EIP) in April – June 2009, following which the report of the Panel overseeing the EIP was published in September 2009. Subsequent to this a supplementary Panel report and Phase 3 proposal have also been published, but neither relate to waste matters. The emerging WMRSS is now stalled (probably permanently) in light of the Government’s position on Regional Strategies.
18. The emerging RSS Phase 2 revision provides an indication of the need for future waste management capacity. Table 5 of the RSS provides sub-regional waste apportionment for the years 2005/06, 2010/11, 2015/16, 2019/20, 2020/21 and 2025/26. The table provides figures which show the minimum requirement for the diversion of waste from landfill. These are based upon three main assumptions:
  - The achievement of national recycling and recovery targets (now incorporating the WSE 2007 targets);

- The anticipated housing growth figures;
- The achievement of the LATS allowance allocated to each Waste Disposal Authority by Defra.

19. The minimum annual landfill diversion requirement for municipal waste is set out below:

*Regional*

2005/06: 1,777,850 tonnes

2010/11: 2,381,167 tonnes

2015/16: 2,785,369 tonnes

2020/21: 3,039,985 tonnes

2025/26: 3,156,001 tonnes

*Worcestershire & Herefordshire*

2005/06: 102,000 tonnes

2010/11: 203,000 tonnes

2015/16: 272,000 tonnes

2020/21: 311,000 tonnes

2025/26: 328,000 tonnes

20. It must be noted that the figures are presented as a '**minimum**' requirement, which suggests that proposals for an even greater diversion of waste from landfill would be encouraged.

21. The minimum annual landfill diversion requirements for C&I waste are set out within Table 6 of the emerging RSS which indicates:

*Regional*

2005/06: 4,040,000 tonnes

2010/11: 4,598,000 tonnes

2015/16: 5,727,000 tonnes

2020/21: 7,844,000 tonnes

2025/26: 7,844,000 tonnes

*Worcestershire & Herefordshire*

2005/06: 538,000 tonnes

2010/11: 613,000 tonnes

2015/16: 764,000 tonnes  
2020/21: 1,046,000 tonnes  
2025/26: 1,046,000 tonnes

22. In addition to the above, Table 7 of the RSS provides details of the anticipated gap in waste treatment capacity (which includes thermal treatment) for all Waste Planning Authorities in the West Midlands. This indicates that the Region has a waste treatment capacity gap for all waste streams of circa 4,000,000 tpa. Worcestershire is identified as having a waste treatment capacity gap of over 900,000 tpa. The treatment capacity gap figure for Herefordshire is not identified within Table 7. However, having reviewed the technical paper which informed the production of Table 7, it is apparent that the treatment capacity gap for Herefordshire is circa 80,000 tpa.
23. Notwithstanding their future status, the data supporting the extant and emerging regional spatial policy framework allows the following conclusions to be drawn:
- Significantly more waste treatment / recovery capacity is required throughout the region;
  - The wider region does not have excess waste treatment capacity that could support the identified deficit in Worcestershire and Herefordshire;
  - New waste treatment / recovery capacity (including EfW) is required within the Worcestershire & Herefordshire sub-region for both MSW and C&I waste.

### ***Sub Regional Waste Arisings and Facility Capacity***

24. The Worcestershire Waste Core Strategy (WCS) Background Document: Arisings and Capacity (16<sup>th</sup> June 2011 plus subsequent Addendum), produced as part of the evidence base for the WCS, postulates a range of evidence based MSW growth scenarios (for Worcestershire and Herefordshire MSW combined) and C&I waste growth scenarios (Worcestershire waste only). It sets out the predicted arisings based on its preferred approach in the Addendum Document (entitled 28<sup>th</sup> July 2011,

albeit referred to as 16<sup>th</sup> August 2011 version – see CD-DP6a) as the replacement table to the original Executive Summary. I have extracted the MSW and C&I waste data and reproduced it as Table NR10–1.

**Table NR10-1: Replacement summary table of projected waste arisings from WCS Background Document: Arisings and Capacity Executive Summary**

	2010/11	2015/16	2020/21	2025/26	2030/31	2035/36
MSW arisings projection (Herefordshire and Worcestershire) (tonnes)	405,139	421,817	438,496	455,175	471,854	485,197
C&I (including agricultural waste) arisings projection (tonnes)	601,790.4	644,038.8	692,072.6	746,684	808,773.9	879,366.2

25. The actual historic MSW arisings for the authorities, and its method of management, is monitored by Mercia Waste Management (MWM) in its role as the long term municipal waste contractor for Worcestershire and Herefordshire Councils. This is shown in Table NR10-2 below.

**Table NR4-2: MWM MSW management data**

Year	A	B	C	D	E	F	G	H	I	J
	Contract Waste (Including Recycling and Green)	Bring sites and other MSW tonnage	A+B = Total MSW tonnage	To Hill & Moor Landfill	To Third Party Landfill	To Third Party (out of County) EfW	C-D-E-F = Recycling, Bring site and Green	Recycling Bring site and Green as % MSW <sup>5</sup>	D+E+F = Tonnes to landfill or EfW	% Balance to landfill or EfW
2010/11	364,166	6,686	370,852	165,424	25,902	18,145	161,381	44.32	209,471	55.68
2009/10	365,051	9,737	374,788	159,744	28,558	31,786	154,700	42.38	220,088	57.62
2008/09	371,955	11,976	383,931	170,435	29,151	31,103	153,242	41.20	230,689	58.80
2007/08	379,597	12,259	391,856	187,874	30,079	25,364	148,539	39.13	243,317	60.87

26. It can be seen from the above, that recent MSW tonnages have fallen below the predicted figures in the emerging WCS Background Document. MWM

<sup>5</sup> This rate is not the same as the measured recycling rate which relates to household waste only, not total MSW. The reported household waste recycling rate for 2010/11 was 42.08%.

believe that this is due to the reasons set out within the introduction to this Appendix. However, it is evident that the reduction in contract waste (that collected from households and Household Waste Sites) appears to have bottomed out. It is notable that the quantity of residual waste being sent to landfill or out of county EfW facilities is significantly over 200,000 tonnes in each year.

27. As referenced in the introduction, the EnviRecover facility can treat both MSW and C&I waste, although in this case the priority would be to process MSW as part of MWM's PFI contract. However, should there be less than 200,000 tpa residual MSW in any particular year over the life of the facility, the spare capacity would be used to manage residual C&I wastes. Such a scenario is supported by WSE 2007 which identifies the key Government objective to: *increase diversion from landfill of non-municipal waste and secure better integration of treatment for municipal and non-municipal waste*. As such, I have also identified C&I waste quantities within Worcestershire.
28. The emerging WCS Background Document: Arisings and Capacity (updated 16<sup>th</sup> June – see CD-DP6) identifies at paragraph 3.20, that C&I waste arisings in Worcestershire (excluding Herefordshire) were 568,199 tonnes in 2006/7. Table NR10-1 indicates that the WCS assessment identifies this figure as 601,790 tonnes of C&I waste in 2010/11.
29. In December 2010, the Department for Environment Food and Rural Affairs (DEFRA) published a survey of C&I wastes generated in 2009. This data is widely considered to be the most accurate information on C&I arisings in England.
30. As described in the Council's committee report (paragraph 190), the DEFRA data is provided regionally, with 5,248,000 tonnes of C&I waste produced in the West Midlands Region, a decrease of approximately 28% from the previous survey, conducted in 2002/03. Because the current survey does not provide discrete data for Worcestershire and Herefordshire, it has been assumed that the same proportion of this waste was produced within Authorities in 2009, as was in 2002/03. By applying this proportion to the current data it has been calculated that approximately 650,000 tonnes of

C&I waste was produced across the Herefordshire and Worcestershire in 2009. The current survey also indicates that 52% of the C&I waste generated in the West Midlands was re-used, recycled or composted in 2009.

31. The DEFRA figure for C&I waste correlates well with that produced for the WCS, bearing in mind the latter excludes Herefordshire waste. Adopting the DEFRA C&I waste arisings figure of 650,000 tonnes and (say) a recycling figure of 55% (i.e. slightly higher than that reported by DEFRA), there is 292,500 tonnes of residual C&I waste (arising from within Worcestershire and Herefordshire). Coupled with the residual MSW (209,471 tonnes in 2010/11 – refer to Table NR10-2) the quantity of residual waste arisings is presently circa 500,000 tonnes. This residual waste is either being landfilled (in or out of the County) or exported from the County for treatment.
  
32. It is known that 18,000 tonnes of residual MSW was recovered in 2010/11 at out of county facilities. (see Table NR10-2) Given there are no residual waste recovery facilities in the Counties (for MSW or C&I waste), and a shortfall within the wider region, it is highly likely that practically all the residual C&I waste is being landfilled (either in or out of the County of Worcestershire, noting Herefordshire has no landfill capacity). In drawing this conclusion, I rely on the facts that:
  - That the residual waste treatment plants that do exist are municipal facilities and ostensibly (if not exclusively) process MSW.
  - There is a huge quantity of C&I waste within the wider region that needs to be diverted from landfill (see regional analysis above) and this is competing for what little merchant treatment capacity exists, if any.
  
33. Notwithstanding the above, if it is assumed that a similar quantity of Worcestershire / Herefordshire C&I waste is being recovered as MSW, there could (optimistically) be ~40,000 tonnes of out of county recovery taking place (MSW plus C&I waste). On this basis, despite all the policy drivers to divert waste from landfill, I estimate there is currently approximately (at least) 460,000 tpa of residual waste being landfilled i.e. Worcestershire and Herefordshire MSW plus C&I waste. Furthermore, both the WCS and emerging RSS consider that both waste streams will continue to grow.

34. Having established the baseline levels of MSW and C&I waste (including residual waste), it is important to consider the two key variables that influence future quantities of residual waste. These are:
- Recycling rates;
  - Waste growth.
35. For MSW, WSE 2007 sets targets for the management of municipal waste:
- Recycling and composting of household waste – at least 40% by 2010, 45% by 2015 and 50% by 2020;
  - Recovery of municipal waste – 53% by 2010, 67% by 2015 and 75% by 2020.
- These targets were confirmed (and maintained at this level) as recently as 14<sup>th</sup> June 2011 in the Government Review of Waste Policy in England 2011.
36. The national targets are mirrored in the Worcestershire and Herefordshire Joint Municipal Waste Management Strategy First Review (JMWMS Review), which was published in November 2009. It sets the two authorities' waste management targets as follows:
- Recycling/composting 40% by 2010;
  - Recycling/composting 45% by 2015;
  - Recycling/composting 50% by 2020;
  - Recovering value from 78% of MSW by 2015.
37. It can be seen these are consistent with the latest national policy and actually exceed the national recovery target by 11% in 2015 (78% compared to 67%).
38. Based on the above, if the Council's WCS predicted MSW arisings data (see Table NR10-1) is coupled with its JMWMS recycling targets, MSW waste quantities will increase to 485,197 tonnes in 2034. Applying the 50% recycling target to all of this MSW (in reality it only applies to the lesser quantity of household waste) there would be 242,599 tonnes of residual MSW at that date. If 60% recycling were achieved there would be 194,079 tonnes.

39. Notwithstanding the position established above, MWM has modelled a variety of waste projection scenarios, combining different recycling rates with different levels of waste growth. These are illustrated on the spreadsheet forming Annex B to this Appendix. The modelling includes a conservative base case and five variant sensitivity test scenarios. With regard to future MSW growth, the scenarios include for the JMWMS Review statement (paragraph 3.3.1) that: *In future years to 2034, it is estimated that municipal waste will only grow in line with the increase in the number of households across the counties.....* i.e. there will be no waste growth in arisings from individual households.
40. Based upon this analysis, I determine that MWM's model of six different household waste recycling and MSW growth scenarios show that in 2034 there will be:
- i) 204,604 tonnes of residual MSW (50% recycling at 2020 and Regional Strategy [RS] housing growth);
  - ii) 184,298 tonnes of residual MSW (55% recycling at 2020 and RS housing growth);
  - iii) 170,181 tonnes of residual MSW (with recycling at 50% by 2018, to 55% by 2023, and to 60% by 2028 and RS housing growth);
  - iv) 198,054 tonnes of residual MSW (50% recycling and emerging District Council forecast housing growth);
  - v) 233,007 tonnes of residual MSW (Waste Core Strategy Data for MSW arisings and growth);
  - vi) 226,924 tonnes of residual MSW (Waste Core Strategy Data for MSW growth, but with reset base data from WCS Replacement Table 32: Defra's Waste Data Flow Municipal Waste Statistics);
41. Under all scenarios there is more 186,500 tonnes of residual MSW requiring treatment when the facility is planned to open in 2015.
42. It is also apparent, that under various scenarios, in various years, differing quantities of residual C&I waste could be recovered at the plant. This ranges from zero to a maximum of 38,095 tonnes. Thus, it is readily apparent that the EnviRecover facility would ostensibly be an MSW facility, although in some circumstances it could make a small beneficial contribution to diverting C&I waste from landfill.

43. The future quantities of C&I residual waste arising within the sub-region is very complex to predict. However, it is beyond any doubt that the quantity will far greater than could ever be treated at EnviRecover. The emerging WCS predicts that that C&I waste arisings in Worcestershire (excluding Herefordshire) will grow to over 800,000 tonnes in 2030/31 (see Table NR10-1). Even if 75% recycling were achieved in 2030/31 there would be over 200,000 tonnes of residual C&I waste remaining.
44. In light of the above, I believe there is, and will be in the long term, an absolute minimum of 400,000 tpa of residual waste requiring recovery (and diversion from landfill) within Worcestershire and Herefordshire. In reality this figure is likely to be much higher.
45. The Mercia EnviRecover is designed to treat both residual MSW and similar C&I wastes, but would treat MSW as a priority. In MWM's view there will be at least 200,000 tpa of residual MSW requiring treatment. Depending on waste growth patterns this may be from the date the plant would become operational or maybe some time thereafter. I believe that given a return to historical rates of house building and a non-recessionary period, the plant would be at capacity, treating MSW alone, sooner rather than later. However, should for whatever reason there be less than 200,000 tpa residual MSW (in any particular year over the life of the facility), the spare capacity would be used to manage residual C&I wastes.
46. In conclusion, with a treatment capacity of 200,000 tpa, it is demonstrably the case that the plant would practically eliminate Worcestershire and Herefordshire's residual MSW being disposed of to landfill. It could also potentially make a modest contribution to diverting local C&I waste from landfill. In achieving this, it would not stifle other reduction, reuse and recycling initiatives, even if recycling levels were to materially increase beyond the current national and local targets. As such, the EnviRecover Facility is an element of the waste management infrastructure required within Herefordshire and Worcestershire that is currently missing. It will compliment the recycling facilities already developed by MWM and will enable the waste hierarchy to be delivered. As such there is a demonstrable need for the facility at a sub-regional level, at the capacity proposed.