

RESIDUAL WASTE MANAGEMENT IN THE SOUTH WEST

Prepared jointly by the South West Waste Technical Advisory Board (TAB) Authorities

October 2017



1. Introduction

- 1.1 The waste management industry has been in a period of rapid change over the last decade. Increasing knowledge and understanding of environmental impacts has resulted in a more stringent regulatory framework being established at a national and international level. This has been supported by the introduction of fiscal measures, notably a rapidly escalating landfill tax, to encourage operators to find alternative more sustainable ways of managing the materials they collect. As the cost of landfill has become increasingly expensive, alternative methods have become more competitive. Recycling rates have increased significantly in recognition of the value of materials within the waste stream.
- 1.2 The waste hierarchy has been a primary driver for these changes. The hierarchy is now embedded at all levels of waste planning policy, from local, to national, to international. The hierarchy sets out a sequential approach which should be followed when considering options for waste management, and seeks to ensure that unavoidable waste is treated in the most sustainable manner possible, considering disposal only as a last resort.

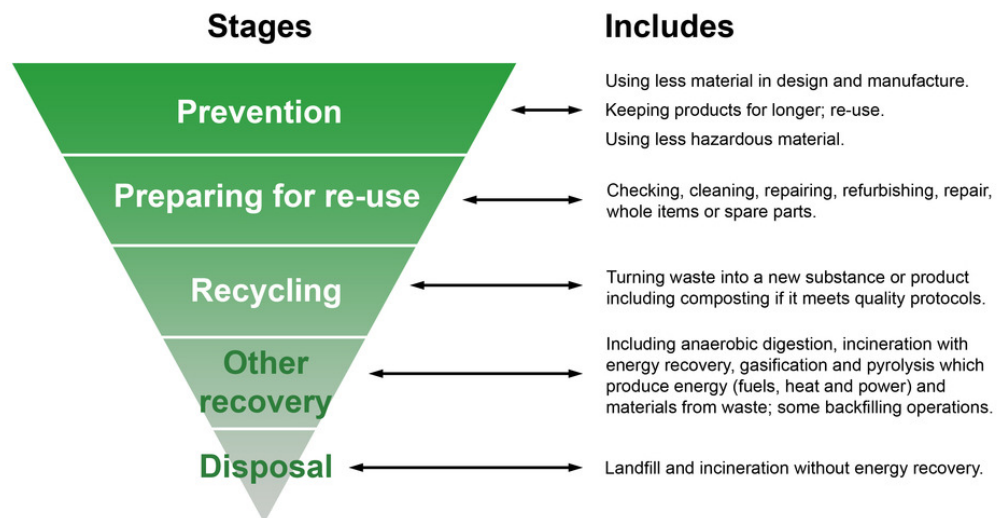


Figure 1: The Waste Hierarchy

- 1.3 Taken together, the trends outlined above have resulted in historic perceptions of the waste management industry evolving into a waste and resource management sector, with reduced reliance on landfill disposal and greater emphasis on sustainable resource management.
- 1.4 The latest UK statistics on wasteⁱ report that the UK produced more than 200 million tonnes of total waste in 2014. More than half (59.4%) of this was from construction, demolition and excavation (CD&E) activities¹, with households and commercial and industrial (C&I) sources each accounting for 13.7%. The remaining 13.3% arose from “other” sources.

¹ It should be noted that this paper focuses on non-hazardous residual waste arising from households and commercial and industrial activities and therefore disposal of CD&E waste is not specifically covered. This is due to the nature of this material (largely inert) and the way in which it is managed (often on the site it is generated). As such, local facilities are still relevant when considering future requirements for this waste stream.

- 1.5 The sector has shown steady year on year growth in turnover from £15.3 billion in 2008 to £18.7 billion in 2014.ⁱⁱ The 2015 data for “wastes from households” provides evidence of the evolution of the waste sector in recent years, reporting that of the total 26.7 million tonnes produced, 44.3% was recycled compared with just 40.4% in 2010.
- 1.6 Over the same period, the national waste statistics also provide evidence of the declining reliance on landfill disposal with just 15.3 million tonnes of municipal waste sent to landfill in 2015 compared with 25.0 million tonnes in 2010.
- 1.7 Whilst the sector has an important role in the safe management of wastes and achieving the targets driven by the European Landfill Directive, a number of recent reports have also discussed the sectors contribution to economic growth, particularly with growing interest in circular economy principles. A circular economy is defined on the WRAP websiteⁱⁱⁱ as an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.
- 1.8 According to a DEFRA report published in 2015^{iv} “*the government is committed to driving economic growth, reducing the deficit and increasing UK exports. Moving towards a more circular economy can contribute to this and is essential for our future growth, increased resilience and environmental and human health*”.
- 1.9 The DEFRA report recognises the significant contribution the resource and waste management sector makes to the economy and estimated that the core waste sector generated £6.8billion in gross value added (GVA) at current prices. GVA is a measure of a sectors contribution to the economy, calculated by taking input costs away from the value of the sectors output.



Figure 2: Index of GVA over time of the waste management sector and the whole economy in constant prices (CVM measure)¹
Source: Digest of Waste and Resource Statistics – 2016 Edition (revised), March 2016

- 1.10 Analysis within the report also identified that over the past twenty years, the GVA of the waste and resource management sector has grown at a faster rate than the wider economy.
- 1.11 Noting the breadth of activities within the UK waste management sector involved in collecting, sorting, treating and recovering waste, the Environmental Services Association (ESA) published their “Delivering sustainable growth” report in May 2016, exploring how the resource and waste management industry benefits people, the economy and the environment.
- 1.12 The ESA report identified that the waste management sector supports 106,000 jobs spread across the country and noted that the sector is diverse, consisting of both large multinational businesses and hundreds of SMEs.
- 1.13 In the South West region, the waste management sector would appear to reflect the national picture and whilst some variation may be seen between Waste Planning Authority (WPA) areas, the South West is well served by a number of the leading waste management companies in addition to smaller, local operators. Local authority waste contracts currently in place involve the companies set out in Table 1. Figure 3 provides a map of local authority boundaries for ease of reference.

Authority	Waste disposal operators	Waste collection operators
Bath & North East Somerset	New Earth Solutions, Suez, Cory and Hills	In house local authority services
Bournemouth Borough	New Earth Solutions	In house local authority service and Urbaser
Bristol City Council	New Earth Solutions, Cory Environmental	Bristol Waste Company
Cornwall Council	Suez	Biffa
Devon County	Viridor, Devon Waste Management, MVV, Suez	In house local authority service, FCC Environment and Suez.
Dorset County	Viridor, New Earth Solutions, Veolia, Suez	In house local authority service (Dorset Waste Partnership)
North Somerset	New Earth Solutions, Cory Environmental	Biffa
Poole Borough	Viridor, New Earth Solutions	In house local authority service
Somerset County	Viridor	Kier
South Gloucestershire	New Earth Solutions and Suez	Suez
Torbay	MVV	Tor2

Table 1: A selection of waste operators with local authority contracts within the south west

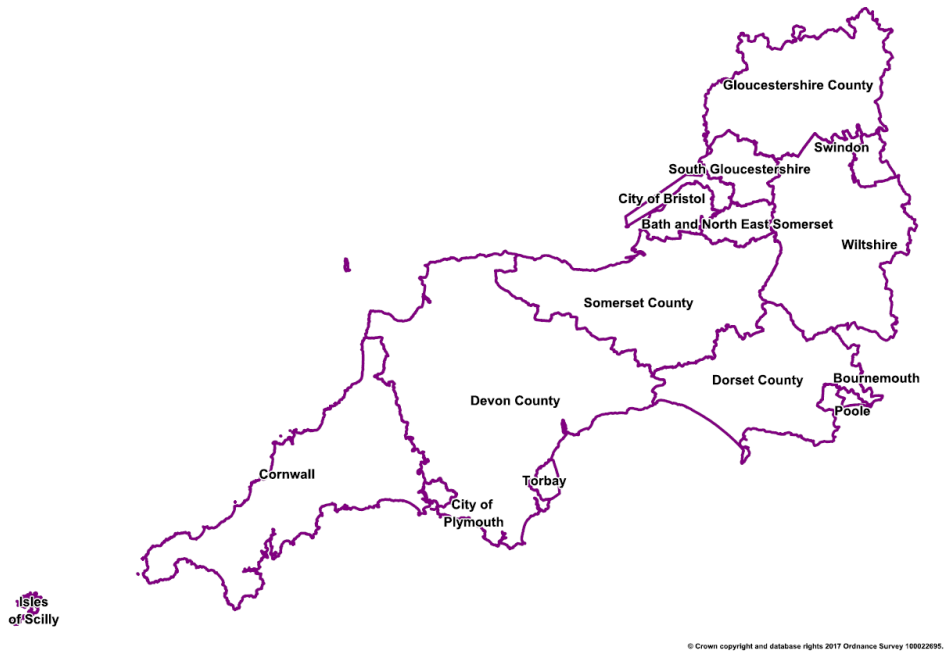


Figure 3: South West Waste Disposal Authority Boundaries

- 1.14 In the South West region, latest data estimates that the waste sector supported 11,000 jobs^v and generated £1,735 million gross value added^{vi} in 2015. With the movement away from traditional landfill disposal techniques and using innovative technologies to treat waste and capture the most value from the recovered material, the sector is creating new, higher skilled jobs.
- 1.15 These jobs compare favourably with other sectors of the economy and according to 2012 figures^{vii}, the average GVA per hour worked was approximately £31 per hour, above the UK whole economy average of £27.8 per hour. There is significant variation across the activities within the core waste sector, from lower-skilled collection activities to the capital intensive MRF facilities. This is displayed in Figure 4 below.

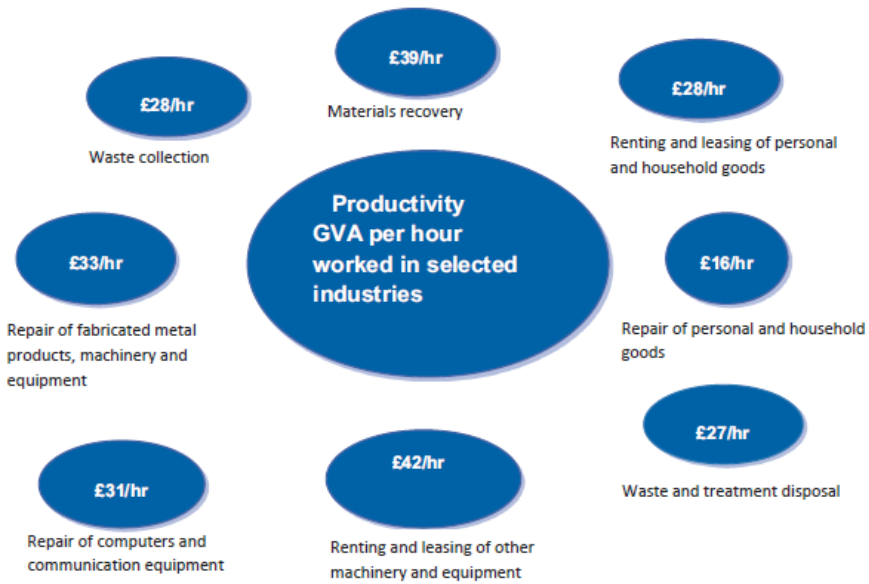


Figure 4: GVA per hour of the waste management sector in current (2012) prices, UK, 2012
 Source: *Digest of Waste and Resource Statistics – 2016 Edition (revised), March 2016*

- 1.16 The UK transition to a circular economy offers continued opportunities for the waste and resource management sector with WRAP and the Green Alliance estimating that a more circular economy could create over 200,000 net jobs in the UK by 2030^{viii}.
- 1.17 The resource and waste management sector will play a significant role in this transition and the ESA estimate^{ix} that a further £10bn investment in the sector nationally would create 50,000 new jobs for the economy and boost GDP by £3bn

2. Background to this report

- 2.1 The South West Waste Technical Advisory Board (SWWTAB) comprises waste planning officers from across the area in addition to representatives from the Environment Agency. The aims of the SWWTAB as set out in the groups terms of reference are:
- To help waste planning authorities (WPAs) in the South West area to fulfil the Duty to Cooperate on strategic issues; and
 - To enable WPAs in the South West area to carry out their individual responsibilities more effectively.
- 2.2 During 2015, the group began compiling a list of non-hazardous landfill sites and energy recovery facilities in the region. Following a presentation on residual waste management from one of the largest waste operators in the area at the group meeting on 3rd March 2016, it was agreed this information would be considered in more detail to establish the likely implications for waste planners across the region.

3. Purpose of this report

- 3.1 To consider how residual waste management across the South West is likely to evolve over forthcoming years and the implications this will have for policy makers.

4. Regional residual waste projections

- 4.1 In order to provide some context for residual waste capacity, consideration has been given to the projected amount of residual waste (requiring energy recovery or landfill) that will be generated in the region in the future. This has been informed by projections produced by individual WPAs. It should be noted that varying approaches have been adopted to develop these projections. The detailed data and assumptions for each WPA are set out in Appendix 1. Figure 5 draws this information together and shows the total estimated residual waste in the South West up to 2028.

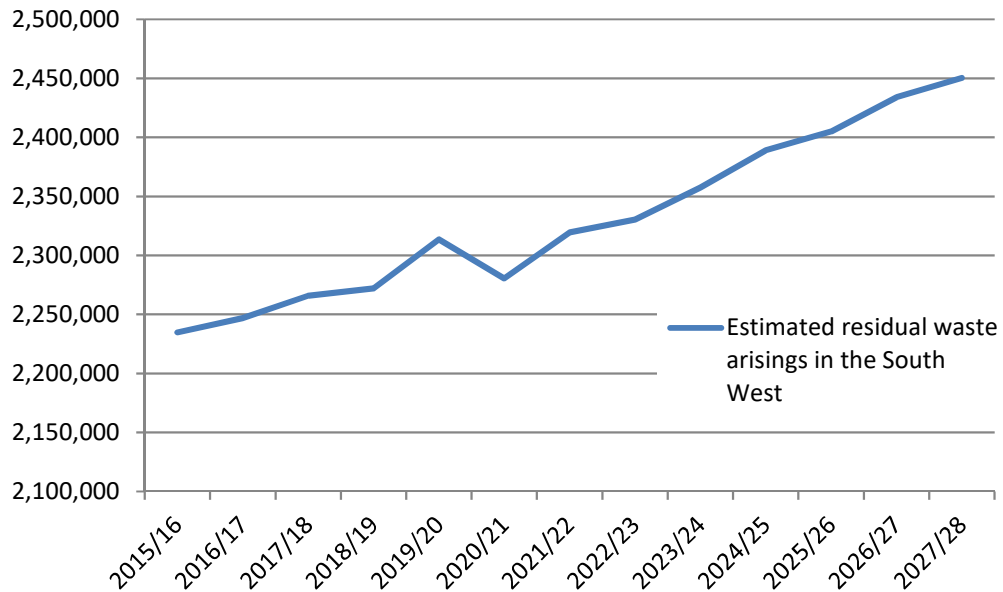


Figure 5: Total Estimated Residual Waste in the South West up to 2028

4.2 The graph suggests that by 2028 the region will generate about 2.45 million tonnes of residual waste per year which will require management by either energy recovery or landfill. This is roughly a 10% increase from about 2.23 million tonnes in 2015. However it should be noted that in some cases the data provided excludes commercial and industrial waste as this was not available for certain WPAs. As such, the total amount of residual waste requiring management is likely to be even higher. All WPAs apart from Somerset are predicting an increase in residual waste. This provides a useful starting point in which future capacity requirements across the region can be considered.

5. Non-hazardous Landfill capacity

5.1 Landfill capacity is monitored annually by the Environment Agency and therefore it is possible to identify how capacity has changed across the region over recent years. This is displayed in Figure 6 below.

5.2 Apart from an increase between 2005 and 2006, the available permitted capacity at non-hazardous landfill sites across the region has declined annually since 2004. Capacity peaked in 2006 at 50.7 million cubic metres. The latest data shows less than half of this capacity remained in 2015 (19.6 million cubic metres).

5.3 Figure 7 provides a comparison of capacity in the south west and capacity in England. This demonstrates national landfill capacity has been reducing since 2005. The patterns displayed in Figures 6 and 7 are similar, with changeable rates of decline between 2006 and 2009, before demonstrating a more consistent rate of decline from 2006 onwards.



Figure 6: Non-hazardous landfill capacity trends in the South West

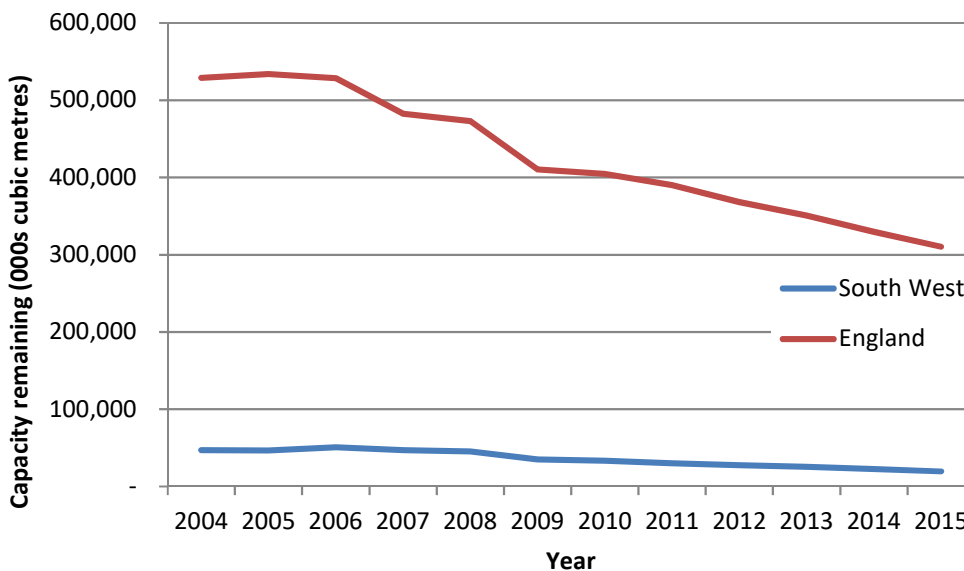


Figure 7: Non-hazardous landfill capacity trends in the South West and England

- 5.4 Interestingly, in 2008 capacity available in the south west represented 10% of the national total. However, this proportion has continued to reduce over recent years and stands at only 6% of the national total in 2015.
- 5.5 To supplement the information published by the Environment Agency, a list of landfill sites within the South West has been compiled alongside information regarding their planning permission expiry dates and remaining permitted capacity. The geographic distribution of the sites is displayed in Figure 8, with additional site information provided in Appendix 2. Remaining capacity has been rounded to the nearest thousand cubic metres.
- 5.6 As can be seen from Figure 8, there are currently 13 active non-hazardous landfill sites across the region. Collectively these sites provide over 14 million

cubic metres of permitted capacity. There is a good geographic spread of facilities across the area, although the majority of sites are located in the eastern part of the region. From the information available, Walpole (9A) in Somerset has the largest remaining capacity, followed by Wingmoor Quarry (6B) and Wingmoor Farm (6A). The Deep Moor (4B) site in Devon recently received approval to extend the expiry date of the current permission to 2025.

- 5.7 It should be noted that in addition to the operational landfill sites displayed in Figure 8, there are also a number of non-operational non-hazardous landfill sites with extant planning permission across the region. A large number of these have permanently closed or been mothballed within recent years. This includes Lean Quarry in Cornwall which was mothballed in 2016 with a significant amount of permitted capacity remaining. Two sites in Dorset, Trigon and Beacon Hill have also both been mothballed recently. In addition, operators have indicated further sites are anticipated to close in advance of reaching their planning permission expiry date and before utilising all of the remaining permitted capacity.

6. Energy recovery capacity

- 6.1 A list of energy recovery sites within the South West has been compiled alongside information regarding their adopted technology and permitted capacity. The geographic distribution of sites is displayed in Figure 9, with additional site information provided in Appendix 3. Facility capacity has been rounded to the nearest thousand tonnes.
- 6.2 As can be seen from the information provided in Appendix 3, there is currently 2.9 million tonnes of permitted energy recovery capacity across the south west area. This can be grouped into 747,300 tonnes of anaerobic digestion² and 2,107,570 tonnes of thermal treatment technology (including incineration, gasification and pyrolysis). Whilst a significant amount of energy recovery capacity is permitted, a large proportion of this remains unimplemented as yet. Only 42% of permitted capacity is currently operational. At the time of writing, there is 1,199,300 tonnes of operational energy capacity (534,300 tonnes of anaerobic digestion and 665,000 tonnes of thermal treatment). There are only four fully operational thermal treatment facilities in the region, compared to 16 anaerobic digestion plants.

² These facilities do not include on farm AD plants that only deal with farm waste generated on site, but do include some facilities that have a mixed feedstock of waste and crop materials.

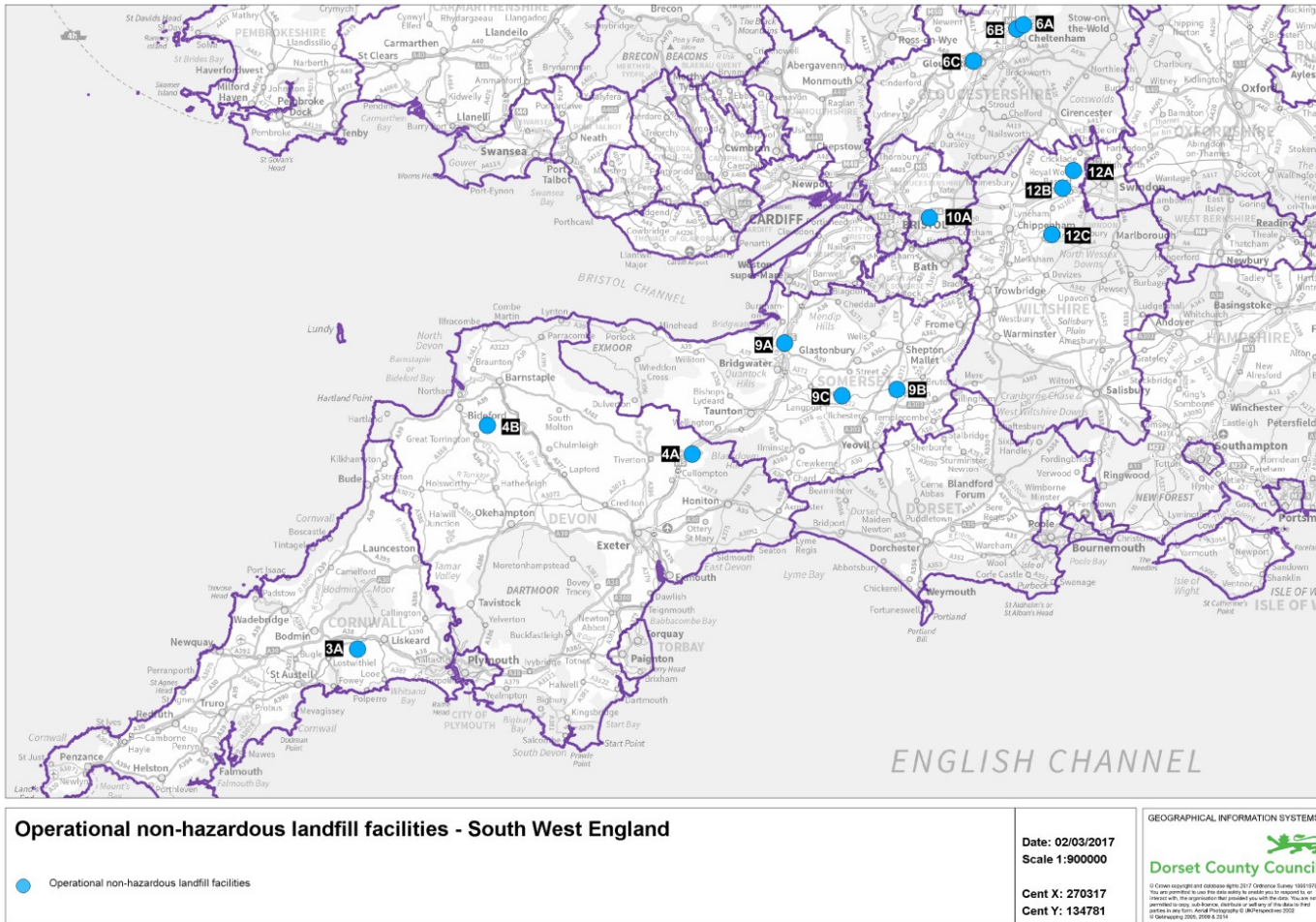


Figure 8: Non Hazardous Landfill sites within the South West

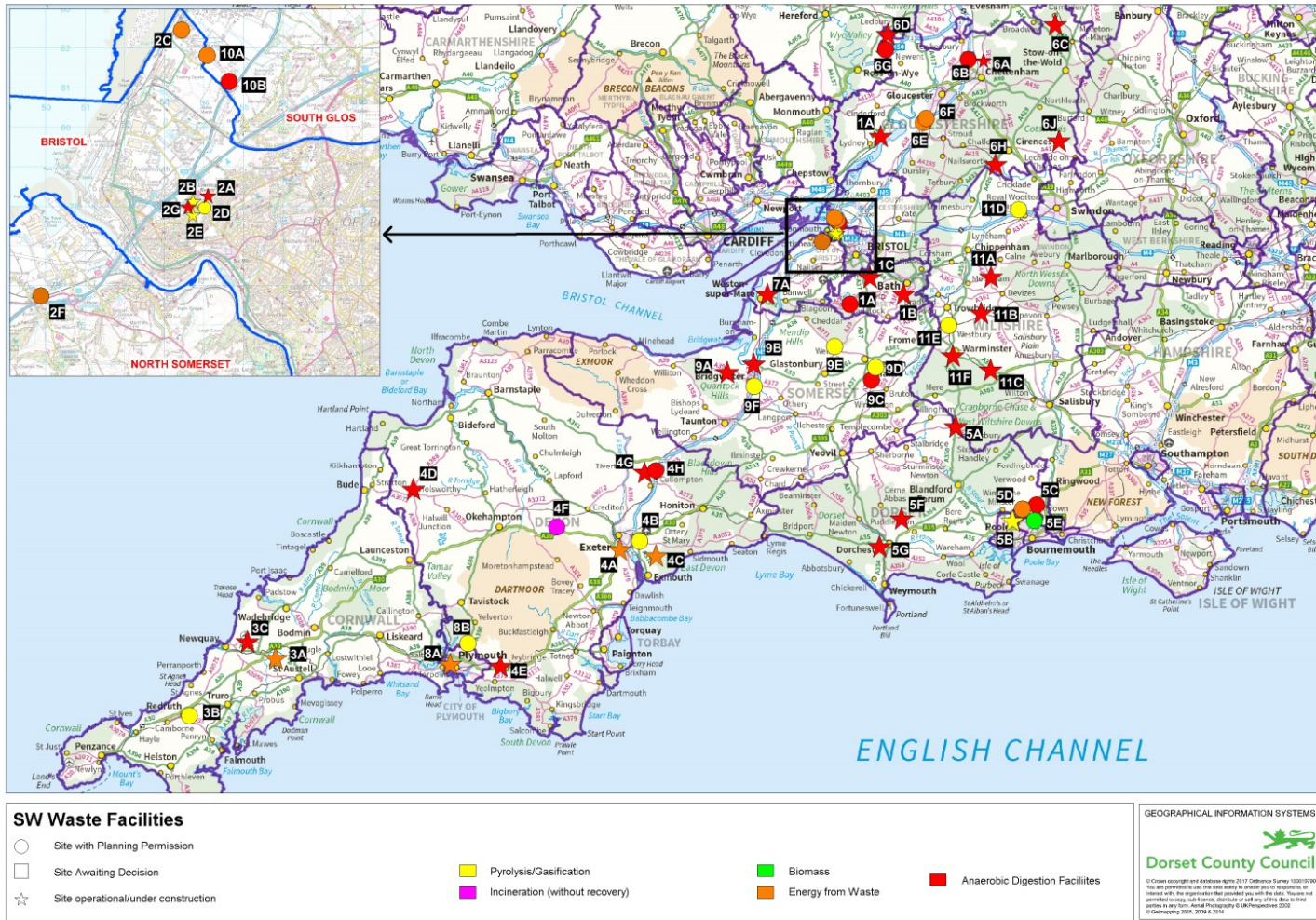


Figure 9: South West energy recovery facilities

7. Industry's future approach to residual waste management

- 7.1 In order to consider how the pattern of residual waste management facilities is likely to change in future, the SWWTAB have liaised with a number of operators in the region. The aim of this approach is to establish their long term plans for the non-hazardous landfill sites in the area in addition to the likelihood of permitted energy recovery facilities being delivered. Operators who have input to the consideration of this matter include Viridor Waste Management and Suez UK Ltd. Consideration has also been given to reports and presentations at a national level on capacity for residual waste management that have lessons for the South West.
- 7.2 The key message to emerge from this area of work for landfill is that it is no longer an economic waste management solution at a local scale due to reducing volumes requiring this form of treatment. As the levels of recycling and energy recovery have grown over recent years, the amount of waste being sent to landfill has reduced. This reduction is expected to continue as new energy recovery facilities become operational across the region over forthcoming years.
- 7.3 This trend will inevitably lead to the need for fewer landfill sites across the region. Sites that continue to operate will accept waste from a wider catchment area, essentially becoming regional facilities. This will mean many authorities across the SW may not host a landfill site, and will utilise capacity available in another WPA area. The facilities that are currently operational are able to adjust their catchment areas in this way without the requirement for further planning permission, and operators may manage their landfill capacity by mothballing or reopening sites to suit changing circumstances.
- 7.4 In relation to energy recovery, on a national level, there is a general consensus that the existing level of operational capacity will not be sufficient to meet the projected demand in the future. There is currently a significant amount of permitted capacity in the south west which is yet to be delivered, as demonstrated in Appendix 3. However, there is also general consensus that it is highly unlikely that all of the permitted energy recovery capacity will be delivered. This is due to the challenges associated with securing financing for schemes and securing sufficient waste contracts to enable delivery. As there is no guarantee that all permitted facilities will come forward, there may be a requirement for further facilities in the region, potentially operating on cross boundary, sub-regional scale.

8. Implications for planning policy

- 8.1 The emerging market trends in residual waste management will have significant implications for planning policy makers. Generally, in the past WPAs have planned to meet their own needs in conformity with paragraph 17 of PPS10³.
- 8.2 However, national policy has already been updated to take account of these changing market factors. The updated National Planning Policy for waste published in October 2014 clearly recognises the shift in market trends by

³ "Waste planning authorities should identify in development plan documents sites and areas suitable for new or enhanced waste management facilities for the waste management needs of their areas".

referring to the need to, “take into account any need for waste management, including for disposal of the residues from treated wastes, arising in more than one waste planning authority area but where only a limited number of facilities would be required⁴”.

- 8.3 In addition to the changes in national waste planning policy, in 2011 the Localism Act introduced the ‘Duty to Cooperate’. This places a legal requirement on waste planning authorities to engage “*constructively, actively and on an ongoing basis to maximise the effectiveness of Local Plan preparation in the context of strategic cross boundary matters*”. All SWWTAB members agree that residual waste management should be considered in this context and the emerging shift in residual waste management means a new approach is necessary.

9. A new approach for policy makers

- 9.1 As outlined above, changing market trends will mean many authorities across the SW may not host a non-hazardous landfill site in future, and will instead utilise capacity available in another WPA area. This trend already exists in other parts of the country, and indeed within some parts of the south west. Waste Plans will need to be prepared in this context and ensure appropriate policies are in place to consider the provision of a strategic, regionally important facility in their area. This approach already exists for the treatment of hazardous waste, so it is essentially an extension of this approach to residual non-hazardous material.
- 9.2 It is not envisaged this trend will lead to the identification of new sites per se, as there is significant remaining capacity at existing non-hazardous landfill sites, however, there may be cases where WPAs may receive applications to extend an existing site, increase the number of deliveries or increase capacity to accommodate this trend. It is important that planning policies are not unrealistic about self-sufficiency or restricting the cross boundary movement of residual waste.
- 9.3 A similar approach may also need to be adopted in relation to planning for energy recovery facilities. As outlined above, whilst there is a significant amount of energy recovery capacity already permitted, there is uncertainty over how much of this will be delivered and therefore policy makers may need to consider making further provision through planning policy documents. These too should reflect industry drivers consider the potential for sub-regional scale, cross boundary facilities. Policies should certainly not be unnecessarily restrictive to the potential for this type of facility.
- 9.4 To be effective waste policies need to be prepared in the context of the realities of market approaches.

10. Conclusion

- 10.1 The work undertaken by the SWWTAB has recognised the evolving context in which waste planning is being undertaken and will be undertaken in the future. This paper will provide the starting point for authorities reviewing their waste policies and provide a foundation for further work to be undertaken.

⁴ <http://planningguidance.communities.gov.uk/blog/guidance/duty-to-cooperate/what-is-the-duty-to-cooperate-and-what-does-it-require/>

10.2 In light of the findings outlined above, there is a clear need for a joined up approach across the area to ensure the matter of residual waste management is planned for in a coordinated, comprehensive manner.

Appendix 1: South West Residual Waste Projections

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Cornwall	289064	310080	310181	310238	310306	311358	313731	317135	320575	324021	328475	331353	335221
Devon	395420	391805	391972	391135	411624	437007	440062	443969	445463	446438	448399	452980	453791
Plymouth*	77000	77900	78800	79700	80600	81500	82300	83100	83900	84700	85500	86300	87100
Torbay*	40531	40936	41346	41760	42177	42599	43025	43455	43890	44329	44,772	45,220	45,668
Somerset*	123,648	90,145	86,923	83,646	77,701	77,572	77,503	77,331	77,304	77,277	77,248	77,218	77,186
Dorset	288,235	292,324	296,592	300,770	316,752	320,039	323,507	327,001	330,403	333,630	336,873	340,131	343,405
Gloucestershire*	146167	146747	146,708	145674	142775	143847	144917	145987	147055	148124	149193	150259	151326
Wiltshire*	42275	44521	46811	49148	51531	54159	56921	59824	62875	66082	69452	72994	76717
West of England	832,500	852,500	866,500	870,000	880,000	812,500	837,500	832,500	846,000	864,500	865,000	877,500	880,000
South West	2,234,840	2,246,958	2,265,833	2,272,071	2,313,466	2,280,581	2,319,466	2,330,302	2,357,465	2,389,101	2,404,912	2,433,955	2,450,414

* Only municipal / Local Authority Collected Waste data available.

Figures presented in tonnes. Figures presented in grey for Torbay, Plymouth and Wiltshire represent estimates which have been calculated in undertaking this work and do not form part of the original projections provided. Further explanation is provided below.

Projection assumptions

The key assumptions used in the forecasting for each Waste Planning Authority are set out below.

Cornwall

Projections include Local Authority Collected and Commercial / Industrial Waste.

In forecasting future levels of provision for municipal waste it was assumed that:

- Household arisings will grow/decline as shown in the 'Medium Scenario' arisings projection;
- National targets for recycling/composting will be met;
- The Cornwall Energy Recovery Centre (CERC) will begin operating at 100% capacity in 2016;
- All residual waste (excluding tonnages recycled/composted) arising in the municipal waste stream will be processed by the CERC and, where there is spare capacity, commercial and industrial waste will be processed to ensure that it operates at capacity;

The following assumptions and apportionments have been used for the Commercial & Industrial waste stream in this assessment:

- The projections are based on apportioned data reports produced by The Environment Agency and DEFRA and is available for three years; 1998/99, 2002/03 and 2009
- The Waste Management Strategy 2007 says apportioning waste arisings recorded as 'unknown' and 'transfer' to landfill is a reasonable approach that is aimed at preventing under supply of landfill provision. However, the Environment Agency maintains a record of the data processed through all licensed sites and the landfill figures collected for 2009 do not support this. This assessment has opted to split the tonnages recorded as 'transfer' and 'unknown' evenly between 'landfill' and 'recycling/re-use' in order to reflect the Environment Agency waste management records.
- Population projections for Cornwall are taken from a study commissioned by Cornwall Council regarding population projections ; these are based on past trends.

Dorset

**Figures for Dorset include Bournemouth and Poole.
Projections include Local Authority Collected and Commercial / Industrial Waste.**

MSW/LACW

- Number of households/total waste arising's was used to calculate historical trends for tonnage of waste per household.
- Growth was linked to predicted housing growth – taken from the relevant district/borough core strategies/local plans/Strategic Housing Market Assessments.
- Three growth scenarios were considered;
 - low growth – zero growth in waste arising's per household, but builds in planned housing. Average annual growth = 0.81%
 - medium growth – building in an increased tonnage of waste per household (based on an average of the last 5 years waste arising's). Also building in planned housing. Average annual growth 1.66%
 - high growth - building in an increased tonnage of waste per household (based on the highest recorded waste arising figure over the last 10 years). Also building in planned housing as above. Average annual growth 2.70%
- We sought views on the three scenarios from the waste industry and other key stakeholders. Generally, there was agreement that it would be appropriate to plan for a medium level of growth which equates to 1.66% average annual growth throughout the plan period
- Then the total waste arising was apportioned out to the different types of waste collected (recyclates/food/green/wood/residual/bulky) based on percentage split for each material in the baseline year. Knowledge of the waste collection arrangements/changes/initiatives was used to adjust the percentage split as appropriate during the plan period e.g. the introduction of separate food waste collection.
- The 2016 Draft Waste Plan updated the figures to reflect a review of housing by the Eastern Dorset Housing Market Area indicating a higher rate of development is needed than has been achieved undercurrent plans. We also extended the plan period to 2032. This gave rise to a slight increase in the average growth being planned for - 1.69%

C&I Waste

- Baseline figures for waste arising's were based on the Commercial and industrial Waste Survey 2009

- Through consultation with stakeholders we considered forecasting waste arising's, favouring an approach whereby C&I arising's would respond to trends in the economy.
- Three growth scenarios were considered;
 - High growth – waste arising's will grow at the projected rate of economic growth (VA) Average annual growth 2.24%
 - Medium growth – waste arising's will grow at 75% of the projected rate of economic growth (VA) Average annual growth 1.68%
 - Low growth - waste arising's will grow at 50% of the projected rate of economic growth (VA) Average annual growth 1.12%
- Further projections have been made based on the different types of waste within the C&I waste stream. Recycled/organic/residual/other have been proportioned from the total arising's figure using the Defra study.
- Following stakeholder engagement we took forward the low growth scenario. This scenario should build in sufficient flexibility whilst reflecting the governments objective to decouple waste growth from economic growth and recent research suggesting that nationally, C&I waste arising's are fairly stable. The baseline for C&I arising's used may be seen as an overestimate when compared to adjusted figures provided by Defra. However, Dorset does have a strong tourism industry and predicted growth in the sector may see an increase in waste arising's. Additionally Defra's 2014 report indicted some level of growth.
- The low growth scenario provides for growth of 1.12% building in a level of flexibility to ensure that sufficient capacity is provided to manage this waste stream.
- The 2016 Draft Waste Plan confirmed that we were happy with this approach to estimating waste arising's but updated the projections to cover an extended plan period to 2032. This gave rise to a slight increase in the average growth being planned for - 1.13%

Devon

Projections include Local Authority Collected and Commercial / Industrial Waste.

This data is taken from the spreadsheet which was used to inform the drafting of Waste topic paper 1. The figures presented in WT1 display the range created from the optimistic, baseline and pessimistic scenarios. The figures presented above are taken from the baseline (medium) scenario. The scenario assumes there will be a gradual reduction of waste going to landfill, so that by 2031, a maximum of 5% of total LACW and CIW generated is landfilled. We have also made an allowance for rejects from composting which may also require disposal via landfill. We have assumed all outputs from energy recovery processes (i.e. IBA) will be recycled.

Somerset

Projections include Local Authority Collected and Commercial / Industrial Waste.

Municipal waste forecasts were prepared by Somerset Waste Partnership as the evidence base for the Waste Core Strategy adopted February 2013. The data was used to inform Waste Topic paper 1: waste need assessment using 2009/10 as the baseline year and forecasting for a plan period to 2027/28.

The MSW forecasts were based on past trends and assumptions including:

- Housing growth
- Economic growth
- Impacts of the SWP recycling initiatives such as Sort It & Sort It Plus

- SWP initiatives to reduce trade waste abuse at HWRC
- Other national waste minimisation initiatives
- Forecast impacts of construction workers from Hinkley Point C

The 2009/10 MSW baseline excluded 20,000 tonnes of hardcore received at Somerset HWRCs as this material had been traditionally used at landfill sites for engineering purposes and is considered as a disposal activity by the EA. These figures were captured in the C&D waste forecasts.

Since the WCS was prepared, the continued decline in municipal waste arisings (excluding hardcore) was observed initially as forecast but with a sharper increase in arisings occurring from 2012/13 onwards than estimated.

The forecast MSW recycling/reuse rate has not been achieved to date and the latest data for 2015/16 presented in chart 3 reports the actual rate being 9.4% lower than the forecast. The source MSW recycling/reuse tonnage figures are presented in chart 2. Chart 4 illustrates the combined impact of increased overall MSW arisings and the lower than forecast MSW recycling/reuse rate. This has resulted in an initial slower rate of reduction in residual waste arisings than forecast and an increasing rate from 2012/13 and a more constant rate from 2014/15 onwards.

Work is continuing with a review of the waste core strategy including the preparation of a new waste need assessment using 2013/4 as an updated baseline year and forecasting to a 2034/35 plan period. This piece of work takes account of a number of revised factors, not least these emerging waste arising trends, updated housing and economic growth projections, delays to the Hinkley Point C project, revised service changes at HWRCs and anticipated new collection/treatment contracts. Future references are to LACW rather than MSW.

Gloucestershire

Only residual municipal waste data is contained with the projections for Gloucestershire.

These are contained within the Technical Paper WCS-A Waste Data (Update 2010) Table 31 http://www.gloucestershire.gov.uk/media/8107/technical_evidence_paper_wcs-a_data_-2010_update-43159.pdf

Wiltshire

Only residual municipal waste data is contained with the projections for Wiltshire.

The 'Wiltshire and Swindon Evidence Base (Part B: Waste) January 2012' contains information of waste management data and trends, including operational waste sites and estimated capacities. It was intended that the Evidence Base be a 'living document' but no further updating has been done so this document provides our latest data.

The 'Evidence Base' document contains updated versions of the table found in the Waste Core Strategy relating to Municipal Waste. This provides projections to 2019/20.

For the purpose of this work, these figures have been projected forward for the remaining years (to 2027/28) at an annual rate of 5.1% (which is the average annual increase between 2015/16 and 2019/20). These figures are presented in grey.

Plymouth

Only residual municipal waste data is contained with the projections for Plymouth.

Table 6.1 Waste needs assessment 2014 available at:

http://web.plymouth.gov.uk/waste_needs_assessment.pdf

Data provided for key years (2015/16, 2020/21 and 2025/26). In order to establish levels for the interim years, the increase across the 5 year periods have been annualised. These figures are presented in grey. For the final two years (2026/27 and 2027/28) the annual increase estimated for the preceding 5 years (800 tonnes per year) has been applied.

Torbay

Only residual municipal waste data is contained with the projections for Torbay.

Scenario 2 used (assumes 40% recycling (no increase), with low waste growth).

Scenario 2 provides projections to 2024/25. Figures for 2025/26-27/28 assume a 1% increase per year. These figures are provided in grey.

West of England.

Projections include both Local Authority Collected and Commercial / Industrial Waste.

The figures shown (in tonnes) are based on projections made in 2009, but are the only data known to be available. It is hoped that the WoE waste database can be reviewed, perhaps in 2018, and that more up to date projections can be obtained. The figures provided should be regarded with that point in mind. They are very approximate figures, because they are based on readings taken from graphs (figures 2.2, 2.3, 2.5 and 2.6) in the West of England Waste Management Capacity Needs Assessment June 2009, part of the evidence base for the West of England (WoE) Joint Waste Core Strategy (JWCS) which was adopted in 2011. The figures have been calculated by taking a) the mid points between figures (graph readings) for the upper and lower projections for municipal solid waste going to recovery and landfill, and b) the mid points between figures (graph readings) for the upper and lower projections for commercial and industrial waste going to recovery and landfill, and adding them together.

Appendix 2: Operational non-hazardous landfill sites in the South West

REF	Site Name	• Operator	Planning permission expiry date
Bath & North East Somerset			
1A	-		
Bristol			
2A	-		
Cornwall			
3A	Connon Bridge	Suez UK ltd	31/12/2018
Devon (inc. Dartmoor, Torbay & Exmoor)			
4A	Broadpath	Viridor Waste Management	02/07/2023
4B	Deep Moor	Devon Waste Management	31/12/2017
Dorset, Bournemouth & Poole			
5A	-		
Gloucestershire			
6A	Wingmoor Farm	Cory Environmental ltd	N/A
6B	Wingmoor Quarry	Grundon Waste Management ltd	31/12/2029
6C	Hempsted	Cory Environmental ltd	N/A
North Somerset			
7A	-		
Plymouth			
8A	-		
Somerset (inc. Exmoor)			
9A	Walpole	Viridor Waste Management	N/A
9B	Dimmer	Viridor Waste Management	N/A
9C	Whiscombe Hill	Westcombe Waste ltd	31/12/42
South Gloucestershire			
10A	Shortwood Quarry	Cory Environmental ltd	
Isles of Scilly			
11A	-		
Wiltshire & Swindon			

12A	Parkgate Farm	Hills Waste Solutions ltd	15/08/2024
12B	Park Grounds	Crapper and Sons ltd	31/12/2020
12C	Lower Compton	Hills Waste Solutions	24/05/2022

Appendix 3: Energy recovery facilities in the South West

REF	Location (Full address)	Description of treatment facility: <ul style="list-style-type: none"> • Energy from waste (incineration with energy recovery) • Pyrolysis / gasification • Anaerobic digestion • Other: please specify 	Type(s) of waste treated: <ul style="list-style-type: none"> • MSW • C&I • Hazardous • Other: please specify 	Permitted capacity (tonnes)	Decision date issued (DD/MM/YY)	Status (operational / permitted not operational)	Permission end date, stating NA if not applicable (DD/MM/YY)	Is the permission within a site or area that is allocated within a Waste Plan?
Bath & North East Somerset								
1A	North Widcombe Farm , Widcombe Common, West Harptree, BS40 6HP	Anaerobic Digestion	On-farm waste	14,000	28/9/2015	Permitted, not operational	28/9/2020	No
1B	Fosseway Environment Park , Fosseway, Englishcombe, Bath BA2 8PD	Anaerobic digestion Any combined mechanical, biological and/or thermal treatment	MSW Imported food waste for AD	100,000 tpa: 30,000 tpa (AD) 70,000 tpa (MBT) (output not specified but has capacity to generate electricity)	04/08/14	Under construction, due to be operational late 2017	N/A	Yes; forms part of JWCS site A2
1C	Parcel 5319, Charlton Field Lane, Queen Charlton, BS31 2TN	Anaerobic Digestion	Imported food waste	25,000 tpa Output: Approx. 1MW net electricity	21/04/14	Permitted and due to operational in April 2017	N/A	No

				pa				
Bristol								
2A	Wessex Water waste treatment plant, Kings Weston Lane	Anaerobic digestion	Food and organic waste	70,000 tpa (output not provided)	14/12/10	Operational at 31/3/14	N/A	No
2B	New Earth Solutions, Advanced Conversion Technology, Kings Weston Lane	Pyrolysis/gasification	Other: Feedstock from adjacent MBT facility. (originally MSW)	120,000t Output: Electricity generation capacity 13MW	28/06/12	Operational at 31/3/14	N/A	Yes; JWCS site DS06
2C	Viridor Energy from Waste facility, Former Sevalco Site (North) Severn Road Avonmouth	Energy from waste	MSW Residues from other waste treatment processes (unspecified)	350,000t (290,000t (imported) plus 60,000t (from MRF) Output) Electricity generation capacity permitted 30MW	06/04/11	Permitted not operational at 31/03/16	06/04/16	Yes; JWCS site DS07
2D	Compact Power/Ethos, Avonmouth Refuse Transfer Station Kings Weston Lane	Pyrolysis	MSW	32,000t	9/9/2005	Permitted not operational at 31/3/15	Under construction but work suspended	No
2E	SUEZ, Avon power Plot M2, Merebank Estate Kings Weston Lane	Gasification Other: Cynar Plant	MSW	100,000 t 6,000t plastics	22/08/11	Part operational at 31/3/16	Recycling facility completed in	Yes; JWCS site DS05

	Avonmouth			to fuel			2013/14	
2F	Former Sevalco Site , Avon Power Chittening Road. BS110YU	Thermodynamic units Energy from waste	Other: Renewal energy plant producing diesel, carbon black and LPG	35,000t	17/12/14	Permitted not operational 31/3/16	N/A	No
2G	Geneco, Bristol Water Waste Treatment Works , kingsweston Lane, Avonmouth	Anaerobic digestion	Food and organic waste	30,000tpa	10/08/15	Operational at 31/3/16	N/A	No
Cornwall								
3A	Cornwall Energy Recovery Centre (CERC) , St Dennis.	Energy from waste (incineration with energy recovery)	MSW & C&I	240,000 (Approximately 200,000 MSW 40,000 C&I)	19/05/11	Operational	NA	Located within Area of Search - Cornwall Waste Local Plan 2002
3B	Green EfW Investments Ltd Hallenbeagle, Scorrier, Redruth.	Energy from waste (Pyrolysis/gasification)	C&I	40,000 tonnes	06/11/12	Permitted (not operational)	NA	No.
3C	Penare Pig Farm Bio-gas Plant , Fraddon, St Columb.	Anaerobic Digestion	C&I (Farm/food waste)	45,000 (7,000 onsite waste / 38,000 imported waste)	20/07/2012 (as amended 29/11/2013)	Operational	NA	No
Devon (inc. Dartmoor, Torbay & Exmoor)								
4A	Exeter EfW , Grace Road, Exeter EX2 8QE	Incineration with energy recovery	MSW	60,000	20/05/08	Operational	NA	Yes
4B	Hill Barton ,	Gasification	C&I	72,000	24/03/10	Permitted –	NA	Yes

	Clyst St Mary, Exeter, EX5 1DR					not operational		
4C	Hill Barton, Clyst St Mary, Exeter, EX5 1DR	Incineration with energy recovery	C&I (wood)	12,000	15/04/2015	Under construction	NA	Yes
4D	Holsworthy Biogas, Chilsworthy, Holsworthy, EX22 7HH	Anaerobic digestion	MSW, C&I, agricultural	80,000	??/05/99	Operational	NA	No
4E	Langage AD, Higher Challonsleigh, Smithhaleigh, Plymouth, PL7 5AY	Anaerobic digestion	MSW, C&I	12,800	22/06/09	Operational	NA	No
4F	Tellams, Cheriton Bishop, Exeter EX6 6HH	Incineration without energy recovery	Clinical and other hazardous	6,570	02/10/13	Permitted – not operational	NA	No
4G	Lloyd Maunder AD Willand, EX15 2PJ	Anaerobic digestion	C&I (abattoir waste) and crops	49,000 tpa (25,000t abattoir waste and 24,000 crops)	26/05/2015	Under construction	NA	No
4H	2 Sisters Food AD Willand, EX15 2PJ	Biorefinery (anaerobic digestion)	C&I (abattoir waste)	10,000 tpa	29/06/2015	Permitted not operational	NA	No
Dorset, Bournemouth & Poole								
5A	Blackmore Vale Creamery, Wincombe Lane, Shaftesbury, SP7 8QD	Anaerobic digestion	C&I Agricultural (Limited to milk waste onsite and from other dairy processors)	Currently manages <1000tpa	05/08/09	Operational	NA	No
5B	Canford MBT New Earth Solutions,	MBT Plant with Low Carbon Energy	MSW C&I	125,000tpa	Various	Partly operational	NA	Yes

	Canford Magna, BH21 3BW	Facility for Refuse Derived Fuel and Syngas Production Facility (Pyrolysis and Gasification)			LowCEF - 01/07/13			
5C	Parley AD Plant Eco Sustainable Solutions, Chapel Lane, Parley, Christchurch BH23 6BG	Anaerobic digestion	MSW C&I	45,000tpa	30/07/15	Permitted, not operational	NA	No
5D	Parley Solid Recovered Fuel Facility Eco Sustainable Solutions, Chapel Lane, Parley, Christchurch BH23 6BG	Solid Recovered Fuel Facility	MSW C&I	10,000tpa	30/07/15	Permitted, not operational	N/A	No
5E	Parley Bio-Energy Facility Eco Sustainable Solutions, Chapel Lane, Parley, Christchurch BH23 6BG	Biomass facility	MSW C&I Wood waste	15,000tpa	Permitted, not operational	Under Constriction	NA	No
5F	Piddlehinton AD Plant Eco Sustainable Solutions, Bourne Park Estate, Piddlehinton, DT2 7TU	Anaerobic digestion	MSW C&I	25,000tpa	08/06/10	Operational	NA	No
5G	Rainbarrow Farm JV Energen, Dorchester, DT2 9JF	Anaerobic digestion	C&I Agricultural	39,000tpa Note: Max 12,000tpa of waste permitted (the remainder being crops)	21/04/11	Operational	NA	No
Gloucestershire								
6A	Wingmoor Farm East Andigestion Ltd	Anaerobic digestion	MSW	34,000 (and under development)	20/5/2014	operational	12 months of cessation of development	Yes

	Stoke Road, Bishops Cleeve, GL52 7DG			will meet MSW food waste contract when running.			or 31 st December 2030 which ever is earlier	
6B	Wingmoor Farm West Cory Environmental Ltd Stoke Road, Bishops Cleeve, GL52 7DG	Anaerobic digestion (also a permitted pre-treatment facility which could divert some residual but mainly produce an RDF like product)	MSW/C&I	30,000 (Not yet implemented. Associated with 70,000 pre-treatment plant)	20/5/2014	permitted	12 months of cessation development or date of Wingmoor Farm West landfill closure.	Yes
6C	Moreton Valence Recovery Centre, Smith's (Gloucester) Ltd, Land at Old Airfield, Moreton Valence, GL2 7NA	Energy from Waste (Gasification)	C&I	30,000tpa (Restricted to existing non- hazardous C&I wastes already handled on site)	27/9/2011	Permitted not operational	n/a	Yes
6D	Gloucestershire EfW facility, Urbaser-Balfour Beatty Javelin Park, Bath Road, Haresfield, GL2 7NQ	Energy from Waste	MSW and C&I	190,000tpa	16/01/2015	Permitted not operational		Yes
6E	Homeleaze Farm, H F Hart Ltd, Hatherop, Cirencester, GL7 5DF	Anaerobic digestion	C&I & Agricultural	15,500tpa	17/09/2009	Operational	n/a	No
North Somerset								
7A	Aisecombe Way , Weston- s-Mare	Anaerobic digestion	Food and organic waste	15,000 tpa	20/10/2011	Operational	N/A	Yes
Plymouth								

8A	Devonport EFW , Camels Head Gate, Weston Mill PL2 2BG	Energy from waste (incineration with energy recovery)	MSW and C & I	245,000	03/02/2012	Operational	N/A	No
8B	O Gen Plymtrek Waste Wood Gasification Plant , Belliver Industrial Estate, Plymouth PL6 7BP	Combined heat and power gasification facility	C & I	40,000	01/05/2006	Permitted	N/A	No
Somerset (inc. Exmoor)								
9A	Cannington Cold Stores (Swang Farm), Bridgwater	Anaerobic digestion (farm and food waste only)	C&I	50,000tpa	Dec 2008	Operational	N/A	No
9B	Walpole AD Plant , Walpole, Bridgwater	Anaerobic digestion (food waste)	MSW C&I	30,000tpa with ability to extend by a further 15,000 to 45,000	2008	Operational	31/12/2034	Within a zone as defined in WCS
9C	Tamar Energy Unit 22, Evercreech Junction, Shepton Mallet	Anaerobic digestion (food waste, agricultural waste)	MSW C&I			Permitted Not yet implemented	10/02/2015	No
9D	Southwood Waste Management facility , Southwood Common, Evercreech, Shepton Mallet, BA4 6LX (Canford Renewable)	Pyrolysis Plant (residual waste from existing MRF)	C&I		10/02/2015	Permitted Not yet implemented	n/a	
9E	WP2 , Haybridge, Wells	Pyrolysis Plant	?		5/12/2008	Implemented but not yet constructed (classed as permitted)		
9F	Bridgwater Energy Recovery Plant , Showground, Bridgwater	Gassification	MSW, C&I	80,000tpa	18/05/16	Permitted Not yet		Within a zone as defined in

						implemented		WCS
South Gloucestershire								
10A	Suez Energy Recovery Centre, Severnside, Hallen Marsh BS10 7SP need to check location is correct on map	Incineration/Energy from waste	MSW, C&I		Approved on appeal 18/07/2011	Permitted not operational (Construction commenced)		Yes
10B	Willow Farm, near Hallen	Anaerobic digestion	Food and organic waste	Up to 50,000 tpa if both phases of a two phased strategy are implemented	22/06/2012	Permitted not operational	22/06/2015	No
Isles of Scilly								
Wiltshire & Swindon								
11A	Codford Dairy, East Farm, Church Lane, Codford, BA12 0PJ	Anaerobic Digestion	C&I / Agricultural	45,000 tpa	03/06/2011	Operational	N/A	No
11B	Park Grounds, Brinkworth Road, Royal Wootton Bassett, SN4 8DW	Pyrolysis	C&I	150,000 tpa	16/07/2015	Permitted not operational	N/A	Yes
11C	Stephenson Road, Northacre Trading Estate, Westbury, BA13 4WD	Gasification	MSW / C&I	160,000 tpa	23/09/2015	Permitted not operational	N/A	Yes
11D	Bore Hill Farm, Deverill Road, Warminster, BA12 8BD	Anaerobic Digestion	C&I / Agricultural	17,000 tpa	08/03/2011	Operational	N/A	No

ⁱ <https://www.gov.uk/government/statistics/uk-waste-data>

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- ii Environment Agency, [Regulating the waste industry - 2015 evidence summary](#), September 2016
- iii <http://www.wrap.org.uk/about-us/about/wrap-and-circular-economy>
- iv Resource management: a catalyst for growth and productivity, Defra, February 2015
- v Business Register and Employment Survey, accessed from NOMIS January 2017
- vi the GVA figure quoted is SIC 07:water supply, sewerage and waste management from the ONS regional accounts at current prices, accessed December 2016 (*SIC 38: waste collection, treatment, recovery and disposal not available at a regional level*)
- vii DEFRA, Resource management: a catalyst for growth and productivity, February 2015
- viii WRAP and the Green Alliance, Employment and the circular economy – job creation in a more resource efficient Britain, 2015
- ix ESA, Going for growth: A practical route to the circular economy, 2013