

# An Assessment of the Export of Municipal Solid Waste from the UK as Refuse Derived Fuel using a Mass Balance Technique



RDF being baled and wrapped in polythene protection prior to being loaded on transport for export from the UK.

*(Britaniacrest Recycling Ltd)*

**IEA Bioenergy**

IEA Bioenergy: Task 36: Integrating Energy Recovery into Solid Waste Management

# **An Assessment of the Export of Municipal Solid Waste from the UK as Refuse Derived Fuel using a Mass Balance Technique**

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Vismundi Limited

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## Introduction

This report was commissioned by Ricardo Energy & Environment, and funded by the International Energy Agency's Bioenergy Agreement through Task 36 – Integrating Energy Recovery in to Solid Waste Management, managed by Ricardo Energy & Environment.

Vismundi Limited was requested to investigate the mass balance of Municipal Solid Waste (MSW) being converted to Refuse Derived Fuel (RDF) and exported from the UK for recovery in thermal treatment plants in continental Europe. The budget to complete the work was severely limited, so it was only possible to examine UK Government information immediately to hand to provide a first approximation of the situation. It was known beforehand that the statistics readily available are not presented in sufficient detail to provide an accurate measure of the RDF export from the local authorities, so an evaluation of the situation derived from market knowledge was carried out, followed by the suggestion of a methodology for obtaining a more precise mass balance.

This report discusses the definition of RDF within the UK context and describes the export of RDF that has occurred during 2015, being over 2.8 million tonnes. It then presents an approach using mass balance derived from data issued for 2015 by the UK Government Department of Environment, Food and Rural Affairs (DEFRA), and deduces that the statistics imply a range between 350,000 and 500,000 tonnes per annum equivalent as of January 2016. An assessment based on market knowledge by Vismundi is then presented that suggests that a more accurate measure of export level for 2016 is likely to be close to the upper end of the range. Finally, the report discusses a methodology for obtaining a more accurate measurement of the quantity of MSW exported from the UK.

## THE DEFINITION OF RDF

Waste derived fuels have been produced for energy recovery for many years. In the UK there were pelletising plants established from the 1960's onwards in places such as Byker, Isle of Wight and Pebsham<sup>1</sup>, to name but three. These particular plants have ceased to operate, but the general principle behind them of processing (shredding), recoverable materials extraction and moisture reduction remain, and has been put to increasing commercial use in the UK over the last five years or so. Waste fractions that cannot be easily reused or recycled (particularly if they are composed of materials that are difficult to sort or segregate) and have sufficient caloric value are used as a fuel for energy recovery. The fact that the raw waste has been processed has given rise to the expression "Refuse Derived Fuel" or RDF. In the UK it can also be referred to as "Solid Recovered Fuel" or SRF.

There is no official definition of RDF or SRF, and consequently the composition and quality of either may vary, thus giving a variety of environmental impacts when the fuel is used.

The European Recovered Fuel Association (ERFO)<sup>2</sup> has argued for standardisation of RDF and SRF and reference should be made to the ERFO website regarding this. In summary, ERFO proposes that a "common language" is used based on the European standards of CEN/TC 343 for 'solid recovered fuel' (SRF). WRAP has also promoted a classification scheme<sup>3</sup>, but this does not seem to be used

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<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/290316/sp1-344-tr-e-e.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290316/sp1-344-tr-e-e.pdf) Page 74.

<sup>2</sup> <http://www.erfo.info/>

<sup>3</sup> [http://www.wrap.org.uk/sites/files/wrap/WDF\\_Classification\\_6P%20pdf.pdf](http://www.wrap.org.uk/sites/files/wrap/WDF_Classification_6P%20pdf.pdf)

extensively.

For the purposes of this report, it is suggested that SRF is regarded as a fuel produced from non-hazardous waste in compliance with European standard EN 15359, and it is differentiated from RDF by means of the producer specifying and classifying the SRF it receives by detailing the net calorific value, chlorine and mercury content of the fuel, along with the content of all heavy metals mentioned in the Industrial Emissions Directive. A declaration of conformity is also recommended.

On 20 November 2015, the UK Government department DEFRA published their view on the definition of RDF<sup>4</sup>

*Refuse derived fuel (RDF) consists of residual waste that is subject to a contract with an end-user for use as a fuel in an energy from waste facility. The contract must include the end-user's technical specifications relating as a minimum to the calorific value, the moisture content, the form and quantity of the RDF.*

This definition is very relaxed and implies that provided the material is residual waste, and meets the technical specification of the user of the fuel, it can be categorized as RDF. To date, however, the accepted practice within the UK industry has been that RDF is indeed residual waste, but has generally been shredded, and will usually (but not always) have had ferrous and non-ferrous metals extracted from it (more to an extent governed by the value of those materials rather than to meet any particular specification). To meet the requirements of the Environment Agency, the shipping ports and sometimes the end customer, RDF exported from the UK is usually baled and wrapped in a polythene protective wrapper. Some Baltic ports are now, however, calling for the RDF to be containerised.

As far as this report is concerned, RDF is considered to be residual waste that has generally been processed to an unspecified extent that is exported from the United Kingdom meeting the Trans-frontier Shipment (TFS) Regulations<sup>5</sup>.

## **EXPORT OF RDF FROM THE UK**

The phenomenon of growth in the Export of RDF from the UK since 2010 has been examined by the UK regulator, the Environment Agency<sup>6</sup>. Data on the export of RDF from England is produced monthly by Gov.UK<sup>7</sup>. The data for 2015 shows that during the year, over 2.8 million tonnes was exported from the UK. A list of the organisations that completed trans-shipments during the year is presented in Appendix 1. Whilst this data is stated to be England only, it is believed to also contain exports from Wales.

Similar data is not available for Scotland as the Scottish Environmental Protection Agency (SEPA) has redacted exporter details in a response to an Information Request<sup>8</sup> but for the year March 2014 – 15 approximately 100,000 tonnes of RDF was exported from Scotland<sup>9</sup>.

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<sup>4</sup> <http://www.360environmental.co.uk/documents/RDF%20definition%20-%20statement%20%20November%202015.pdf>

<sup>5</sup> <https://www.gov.uk/guidance/importing-and-exporting-waste>

<sup>6</sup> Refuse derived fuel exports (RDF): recent trends <https://www.gov.uk/government/publications/refuse-derived-fuel-exports-rdf-recent-trends>

<sup>7</sup> <https://data.gov.uk/dataset/international-waste-shipment-data>

<sup>8</sup> [http://apps.sepa.org.uk/disclosurelog\\_admin/uploads/f0186023%20eir%20response\\_redacted.pdf](http://apps.sepa.org.uk/disclosurelog_admin/uploads/f0186023%20eir%20response_redacted.pdf)

<sup>9</sup> [http://apps.sepa.org.uk/disclosurelog\\_admin/uploads/f0186023%20release.pdf](http://apps.sepa.org.uk/disclosurelog_admin/uploads/f0186023%20release.pdf)

## MSW MASS BALANCE

Waste management in the UK falls under four devolved administrations and England, Scotland, Wales and Northern Ireland. Each present statistical information on waste arising in their respective areas in different ways. However, the information available on MSW is superior to that available on commercial & industrial waste and with sufficient time available it is possible to produce data sets at a UK national level that are consistent. The problem with carrying out a rapid mass balance is that the statistics are not presented in a consistent way and cannot be simply summated.

For the purposes of this limited report, only data for England will be considered. This is a reasonable assumption as the quantity of MSW produced in England far outweighs that produced in the other administrative areas, as shown by the statistics for household waste arising in 2012 taken from the DEFRA Digest of Waste and Resource Statistics – 2015 Edition<sup>10</sup> and summarized in Table 1

*Table 1 Household waste arisings in the UK devolved administrations (source: DEFRA Digest of waste and resource statistics 2015)*

| Administration   | Waste Arising (million tonnes) |
|------------------|--------------------------------|
| England          | 22.0                           |
| Scotland         | 2.4                            |
| Wales            | 1.3                            |
| Northern Ireland | 0.8                            |
| Total            | 26.5                           |

In England, the structure of MSW collection and disposal is complex and can be confusing. Waste produced by householders is collected by the local authority in its role as a Waste Collection Authority (WCA). However WCAs can also carry out their own commercial waste collections and some do. WCAs are also permitted to carry out their own recycling collection, operate recycling banks, and sell directly to reprocessing markets. Thus the waste received by a local authority can be more than just that produced by householders and collected at the kerbside, and the recyclate collected is not necessarily passed to a Waste Disposal Authority (see below).

WCAs cannot dispose of waste, however. This role is confined to Waste Disposal Authorities (WDAs). WDAs also operate household waste recycling centres or amenity sites where residents can bring their waste to the site and often sponsor and operate (through contractors) facilities such a materials

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<sup>10</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/482255/Digest\\_of\\_waste\\_England\\_-\\_finalv3.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/482255/Digest_of_waste_England_-_finalv3.pdf)

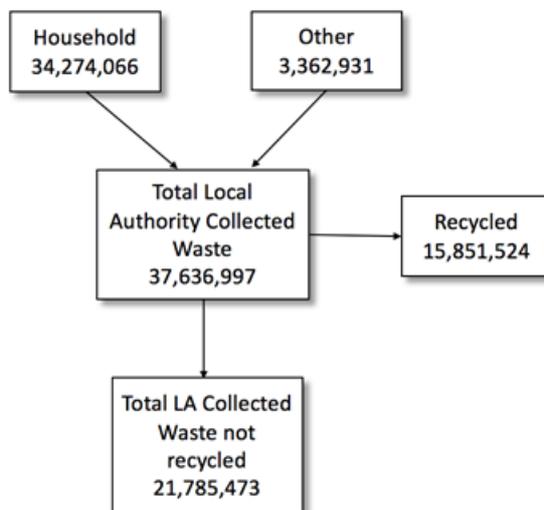
recovery facilities (MRFs). As a result, recycling statistics can and are attributed to WDAs as well as WCA and will be double accounted if the tonnages shown are simply added. Similarly, recyclate sold on to reprocessors by WCAs will not appear in the WDA statistics.

In the two-tier shire counties of England, the County Councils are WDAs and District Councils are WCAs. In the case of the London boroughs, the cities, metropolitan boroughs and unitary authorities, however, these local authorities act in the twin role of both WCAs and WDAs. There is also a further layer of complexity arising from statutory waste authorities that exist in the larger conurbations, but the presence of these does not influence the statistics produced by DEFRA.

Until recently, DEFRA produced waste management statistics on local authority waste on a quarterly basis. The statistics for the whole year 2014/15 can be accessed through the DEFRA website<sup>11</sup> and are presented in "Statistics on waste managed by local authorities in England 2014 - 2015" by following the link to the spreadsheet "Local Authority Collected Waste Statistics". Figure 1 shows schematically the local authority collected waste arising in the English WCAs derived from Table 1 of the DEFRA spreadsheet.

The WDA statistics are shown in Table 2 of the spreadsheet and depicted schematically below in Figure 2:

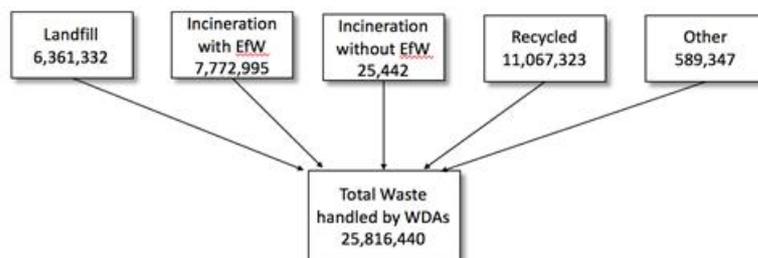
*Figure 1 Local Authority Collected Waste in England 2014/15 (All figures in tonnes)*



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<sup>11</sup> <https://www.gov.uk/government/statistics/local-authority-collected-waste-management-annual-results>

Figure 2 Management of Local Authority collected waste in England 2014/15



It is clear from these figures that an accurate mass balance cannot be derived because some, but not all, of the recycled waste shown in Figure 1 is reappearing in Figure 2. However, this will not impact on the estimate of the waste converted to RDF because, as explained earlier, by definition RDF will not be recycled waste.

The statistics indicate that the quantity of Local Authority Collected Waste that is not recycled amounts to 21.79 million tonnes. This non-recycled waste will be supplemented by civic amenity wastes operated by the WDAs and it is not evident what this quantum is. The options of dealing with non-recycled waste are limited, however, with the only options being to landfill, thermal treatment or export as RDF.

From Figure 2, the quantity of MSW landfilled and incinerated equates to 14.16 million tonnes, leaving some  $21.79 - 14.16 = 7.63$  million tonnes unaccounted for, with a further category "Other" of 0.59 million tonnes unexplained. This is clearly in error and it is impossible therefore to complete a mass balance on the statistics published by DEFRA in its Digest. It is suspected that there is also a change in definition in categorising waste between the two tables in the spreadsheet and this is leading to a numerical discontinuity.

There is no classification of exported RDF given in the DEFRA Local Authority waste statistics. It is possible that MSW converted to RDF and exported is likely to be recorded in the "Other" category, but as has been shown, the Local Authority Collected non-recycled waste greatly exceeds the disposal categories recorded, so it is equally likely that MSW RDF export is lost within the difference between the two tables, and a different approach must be adopted if the quantity of MSW exported as RDF is to be determined.

As stated in Section 3 above, Appendix 1 lists the consignees of RDF exported from the UK during 2015. It is notable that no local authority appears on the list. This does not mean, however, that no MSW is being exported.

Following the Environmental Protection Act 1990, practically all waste disposal, including the operation of thermal treatment plants has been contracted out to the private sector. Consequently private sector waste contractors receive MSW from local authorities, process it to remove valuable recyclable material and dispose of the residual waste by whatever means is at their disposal at lowest cost. In authority areas where PFI thermal treatment infrastructure has been developed, it is highly unlikely that the contractor will convert MSW to RDF and export it. There are, however, PFI projects that have built MBT or similar plants with the intent of producing a residue – either for use as a fuel as an RDF or to produce a stabilized product for landfill. Where this is the case, the local authority may have contracted with a private sector contractor for off-take of the material. Such

an example is in Essex, where the RDF produced under contract to the County Council by Urbaser is taken by Suez as the off-taker. It can be seen from Appendix 1 that Suez is one of the largest exporters of RDF in the UK. Further similar examples are known to exist in Wiltshire, Bradford, Bristol and Bath & North-East Somerset. In addition to Suez, the tonnages exported by Biffa, Hills, Shanks, FCC, New Earth, AWM, and Boomeco can all be expected to contain quantities of MSW.

From literature searches and press articles it is anticipated that at least the following are exporting MSW from the UK:

*Table 2 Anticipated export of MSW from the UK*

| <b>WDA</b>                  | <b>Tonnes exported</b> |
|-----------------------------|------------------------|
| Norfolk                     | 180,000                |
| Essex                       | 15,000                 |
| Wiltshire                   | 28,000                 |
| East London Waste Authority | 40,000                 |
| Bradford                    | 25,000                 |
| Bristol                     | 40,000                 |
| Bath & North East Somerset  | 35,000                 |
| Welsh Councils              | 30,000                 |
| Total                       | 393,000                |

The above figures are given in annual equivalent tonnes, and depending on when the exporting started, not all contribute to the 2015 figures.

Some of the contracts entered into by the local authorities are fixed term and the actual quantity exported will vary from month to month. Over the years 2015/16 It is therefore estimated that the total MSW being exported as RDF from the UK is between 350 and 500 tonnes per annum. This compares favourably with the "Other" category shown in Figure 4/2. Looking forward, however, the quantity of MSW exported as RDF is expected by the author to exceed the rate of 500,000 tonne

per annum during 2016.

## Future Steps to Obtain Accurate Mass Balance

In order to establish an accurate mass balance to determine the quantity of MSW being exported from the UK in the form of RDF it will be necessary to adopt an approach that uses primary data collected from the field rather than the processed data issued by DEFRA.

A more rigorous assessment and mass balance of MSW exported as RDF can be carried out in the following way:

1. All RDF exported from the UK has to comply with the Trans-Frontier Shipment of Waste Regulations. In England and Wales, the entities registering TFS documentation to export waste are placed on public record, along with the quantities exported. Therefore the quantities exported each month and the parties exporting them can be easily monitored using the "data.gov.uk" web page<sup>12</sup>. In Scotland the identity of exporters of RDF is considered "sensitive" information under the Freedom of Information (Scotland) Act 2002 and is not released to public record.
2. As at December 2014, the number of principal authorities in the UK were:

|                  |     |
|------------------|-----|
| England          | 353 |
| Scotland         | 32  |
| Wales            | 22  |
| Northern Ireland | 11  |

Of these, England has 150 County, Unitary, Metropolitan and London Boroughs and 6 statutory waste disposal authorities<sup>13</sup>, all of which are Waste Disposal Authorities and have the right to export their MSW as RDF. In Scotland and Wales, all councils are unitary and therefore have the right to export RDF. In Northern Ireland the situation is more complex and local government reform in April 2015 reduced the number of authorities. However, WasteDataFlow<sup>14</sup> records 25 Unitary Authorities, with the theoretical ability to export waste.

3. WasteDataFlow is the database of local authority waste quantities collected, processed and disposed and can be accessed at two levels:
  - a. Special access to raw data is available to local authorities and persons on special application. It has not been possible to access the database at this level, but it is likely that sufficient data can be retrieved to reprocess it to provide the mass balance sought.
  - b. Public access to published data derived from the WasteDataFlow database is available. This consists of information that has been pre-processed, however, and is the data examined in the section above. This data contains inherent imbalance in the data and an accurate mass balance cannot be derived from it.
4. Direct interrogation of the WDAs regarding the export of their MSW as RDF would probably

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<sup>12</sup> <https://data.gov.uk/dataset/international-waste-shipment-data>

<sup>13</sup> North London, East London, Western Riverside, West London, Merseyside and Greater Manchester.

<sup>14</sup> <http://www.wastedataflow.org/>

provide the most accurate assessment of the quantity of RDF being exported. As stated previously however, many of the WDAs across all devolved administrations contract out their waste disposal, so it is possible that some are not aware of the ultimate destination of their residual MSW and may not be able to provide the information.

5. It will be necessary therefore, to map the WDAs with their waste disposal contractors and the infrastructure in place to deal with MSW where appropriate. The majority of English WDAs and an increasing number of Welsh and Scottish WDAs are developing their own EfW infrastructure and will avoid landfill by disposal using those facilities, rather than exporting RDF.

Having completed the mapping exercise once, it should be relatively easy to identify the organisations potentially exporting on behalf of the WDAs and then to track exported quantities from thereon.

## Conclusions

It is estimated that between 350,000 to 500,000 tonnes of RDF derived from MSW is being exported from the UK per annum (equivalent). The range is wide due to the uncertainty in estimating the actual quantity due to:

- a. the transient nature of the RDF export phenomenon (i.e. the quantity of RDF is on an increasing trend and historical data underestimates the current quantity involved);
- b. the statistics are not sufficiently detailed, nor consistent to provide an accurate mass balance;
- c. the fact that in the UK, MSW is collected under the auspices of local authorities, who are responsible for reporting to Government the quantities collected, only Waste Disposal Authorities can dispose of residual waste and in nearly all cases, waste disposal is contracted to the private sector. Local authorities are not necessarily aware of the final destination of their residual MSW.

It is of note that no local authorities are registered under the TFS regulations as exporters of RDF, yet it is known through market awareness that MSW is being exported as RDF for energy recovery plants, mostly in northern Europe. This export is being carried out by private sector contractors under contract with the local authorities.

It has not been possible in the time permitted for this task to complete an accurate mass balance of MSW in the UK to determine the quantity exported as RDF. The information published by DEFRA is not mathematically consistent and contains double counting in some instances and missing tonnages in others. This is not helped by the complex arrangements that exist between various forms of local authority that occur throughout the UK, compounded by the fact that waste management in England, Wales, Scotland and Northern Ireland is devolved and the responsibility of the different administrations, each of which report in a different manner.

## Acknowledgements

The author wishes to acknowledge and thank the International Energy Agency and Ricardo-Energy & Environment, whose support enabled this report to be completed.

## Appendix 1 RDF Exported from the UK during 2015

|  |        |
|--|--------|
| Biffa Waste Services Limited           | 325337 |
| SITA UK Limited                        | 264732 |
| Andusia Recovered Fuels Limited        | 222801 |
| GemiUK Limited                         | 219799 |
| N&P Alternative Fuels Ltd              | 201309 |
| FCC Recycling (UK) Limited             | 200522 |
| Seneca Environmental Solutions Ltd     | 189335 |
| New Earth Solutions Limited            | 147780 |
| Shanks Waste Management Limited        | 79900  |
| Greenway Waste Recycling Limited       | 76268  |
| McGrath Bros. (Waste Control) Limited  | 75441  |
| Countrystyle Recycling Limited         | 67437  |
| Probio Energy Limited                  | 60296  |
| Boomeco Limited                        | 58382  |
| CellMark UK Limited                    | 57645  |
| Mid UK Recycling Limited               | 55610  |
| Totus Environmental Limited            | 46562  |
| Bertling Enviro AB                     | 43007  |
| Associated Waste Management Limited    | 36935  |
| Bywaters Limited & Bywaters (1986) Ltd | 34751  |
| Powerday Ltd                           | 34539  |
| Chambers Waste Management PLC          | 32887  |
| Grundon Waste Management Limited       | 26611  |
| Akata Biomass UK Ltd                   | 20919  |
| Geminor UK Ltd                         | 18629  |

|                                       |                  |
|---------------------------------------|------------------|
| Transwaste Recycling & Aggregates Ltd | 18620            |
| Thanet Waste Services Limited         | 18471            |
| Weir Waste Services Limited           | 18240            |
| JBT Waste Services Limited            | 17400            |
| Hills Waste Solutions Limited         | 16872            |
| Street Fuel Limited                   | 15797            |
| Wastecycle Limited                    | 13993            |
| MJ Church (Plant) Limited             | 13194            |
| DONG Energy Waste UK Ltd              | 13049            |
| Hinkcroft Transport Limited           | 8549             |
| Blakeley's Waste Management Limited   | 8313             |
| Quercia Limited                       | 7837             |
| Combineering (UK) Ltd & A/S           | 7583             |
| Veolia ES (UK) Limited                | 7192             |
| Bagnall & Morris (Waste Services) Ltd | 6494             |
| Baco-Compak (Norfolk) Limited         | 6137             |
| Niramax Group Limited                 | 4194             |
| Pericula Limited                      | 2227             |
| Churngold Recycling Limited           | 1945             |
| Failand Paper Services Limited        | 922              |
| Armstrong Environmental Services Ltd  | 801              |
| Taurus Waste Recycling Limited        | 745              |
| Elite Recycling Solutions Limited     | 234              |
| Crossways Recycling Ltd               | 74               |
| Miscellaneous                         | 16395            |
| <b>Total</b>                          | <b>2,822,708</b> |

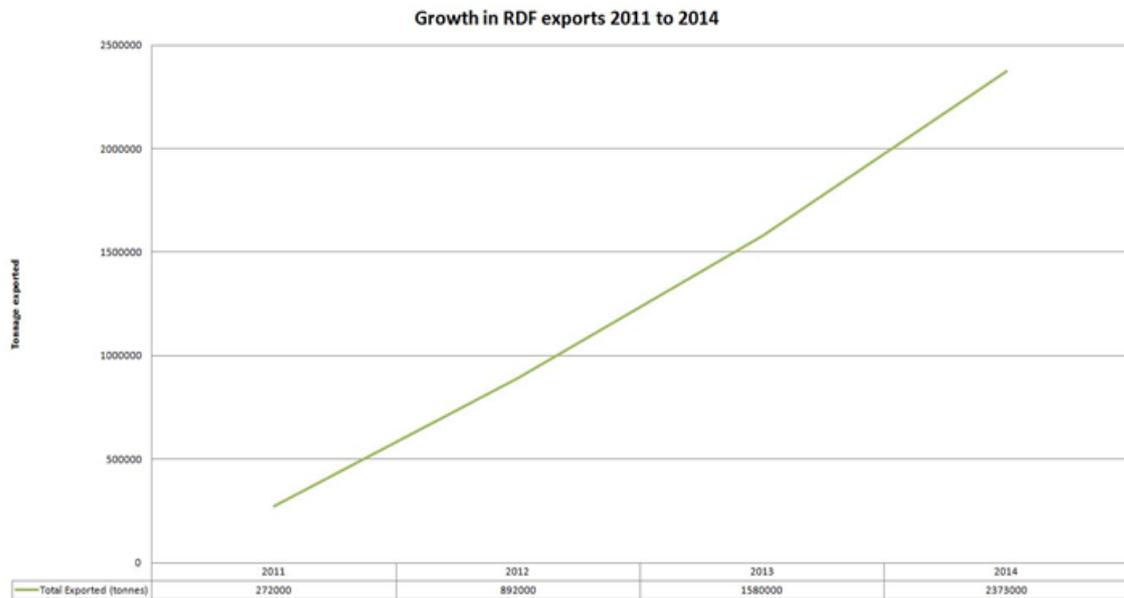
## Appendix 2 extracts from Trade Press articles

The following articles provide detail on export of waste from the UK

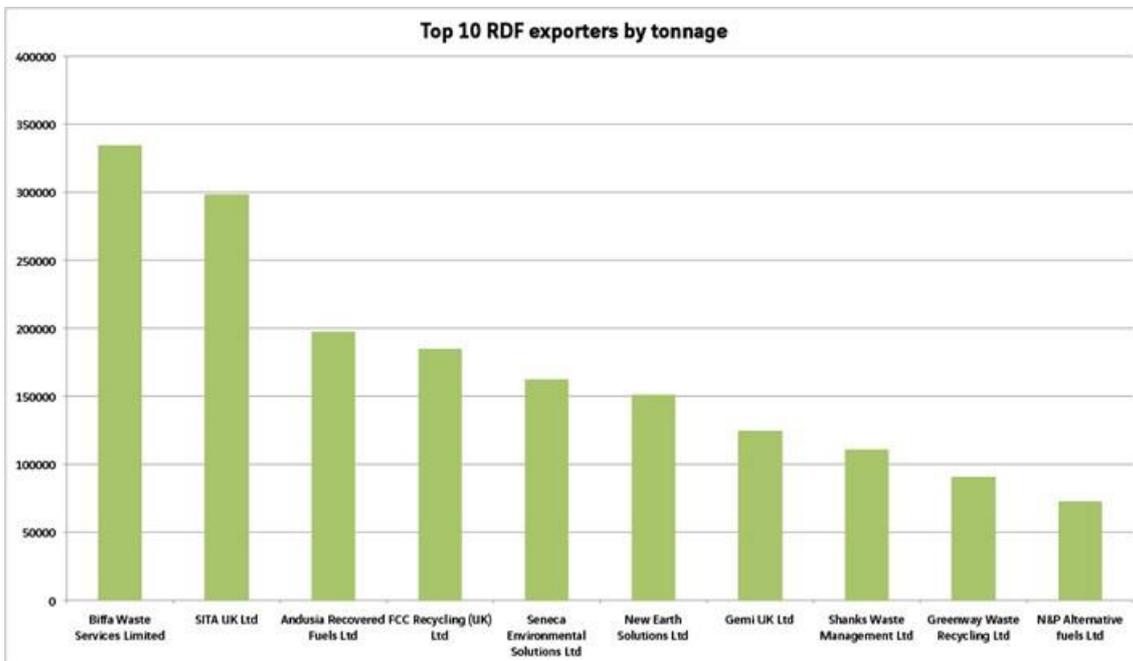
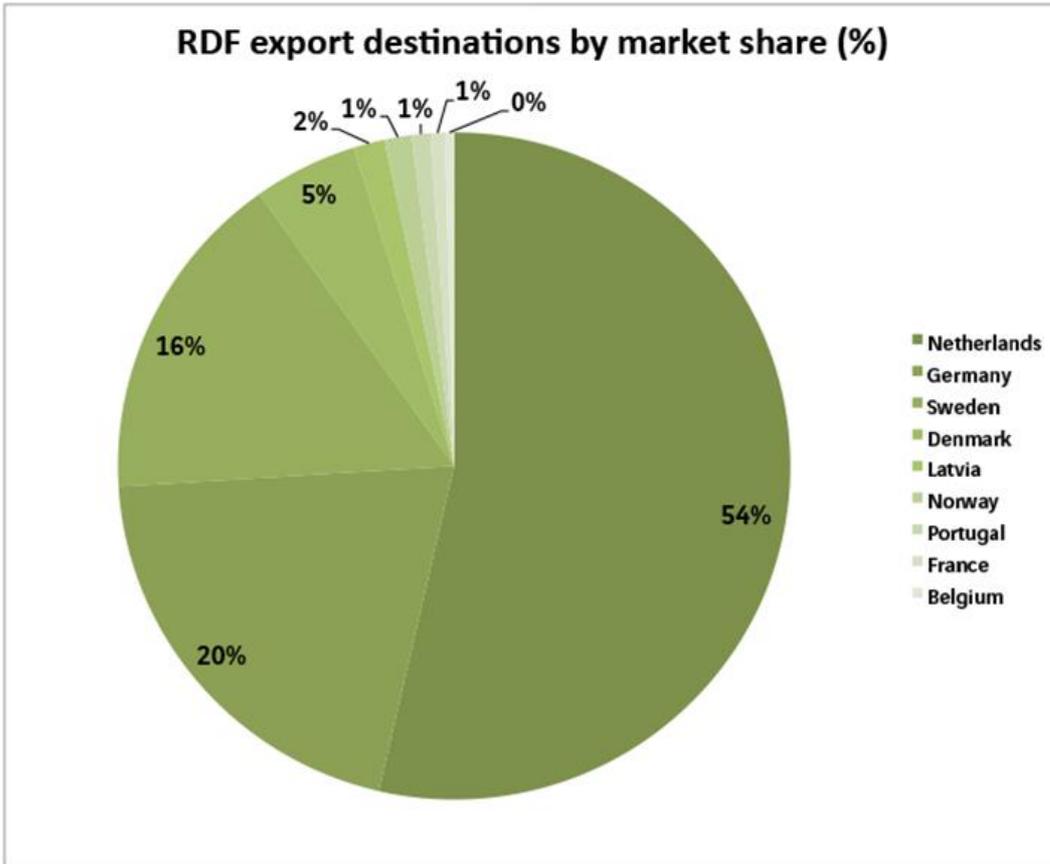
### 1. Lets Recycle.com "RDF exports hit 2.37m tonnes in 2014"

Article: February 16, 2015, Author: Will Date, <http://www.letsrecycle.com/news/latest-news/rdf-exports-hit-2-37m-tonnes-2014/>

This article reported that Environment Agency data published December 2014 showed that the tonnage of refuse derived fuel (RDF) exported from England and Wales to Europe grew by 750,000 tonnes in 2014 to 2,373,600:



The article also provided information on the destination of this waste and the main exporting companies:



## 2. Waste Management World 20,000tpa residual waste processing & RDF export contract for Welsh Councils

Date: 06/02/15 <https://waste-management-world.com/a/30-000-tpa-residual-waste-processing-rdf-export-contract-for-welsh-councils>

This article reports on a deal in Wales to process around 30,000 tonnes of residual waste for export to Sweden as refuse derived fuel. This is under a contract with Potters Waste Management and applies to waste that cannot be recycled.

This was Confirmed by Pembrokeshire CC on:

<http://www.pembrokeshire.gov.uk/content.asp?nav=101,2212&id=31276>

### **3. Lets Recycle.com**

Article: August 26, 2014, Author: Michel Holder, <http://www.letsrecycle.com/news/latest-news/sita-secures-essex-rdf-contract/>

This article reports on a waste management contract awarded to SITA, UK to handle and export refuse derived fuel produced at Essex county council's mechanical biological treatment (MBT) facility in Basildon. The contract will run to 2017. It will result in an average of 15,000t/month of material being sent to Sita UK's RDF and solid recovered fuel facility in Tilbury Docks. This facility has a production capacity of 500,000t/year of alternative fuels for both export and domestic use.

### **4. ENDS Report: Bristol to export waste to Sweden**

Article: June 9<sup>th</sup> 2015. Author: Gareth Simkins. <http://www.endswasteandbioenergy.com/article/1350735/bristol-export-waste-sweden>

This article reports that Boomeco is to export around 40,000 tonnes of waste from Avonmouth to the Mälarenergi CHP complex in Västerås in the 12 months to 2016. This facility already takes waste from west Wales. The options for this waste post 2016 will depend on alternative plans for energy from waste or gasification locally.

### **5. Bath and North East Somerset**

Extract from <http://www.bathnes.gov.uk/services/your-council-and-democracy/local-research-and-statistics/wiki/waste-and-recycling>

"All the material collected for reuse and recycling is sent for recycling within the UK where possible, however, due to demand or market availability, it is sometimes necessary to export some materials overseas. In 2012/13 Bath and North East Somerset Council exported just over 11% of the 35,000 tonnes diverted away from landfill. The majority of this exported waste was removed from residents' weekly bin waste at a facility in Avonmouth. The council sent 9,505 tonnes of waste to this facility in 2012/13, and after all the recyclable and compostable waste has been taken out, the rest was exported for use in energy recovery."

### **6. Norfolk Aims For Zero Waste With New RDF Export Contracts**

Article: CIWM , November 17<sup>th</sup> 2015. Author: Darrel Moore <http://www.ciwm-journal.co.uk/norfolk-aims-for-zero-waste-with-new-rdf-contracts/>

This article reports a potential deal to contract 160000 of residual waste to be sent to FCC Environment, Frimstone and Seneca to be processed into refuse derived fuel for export to the Netherlands and Germany.

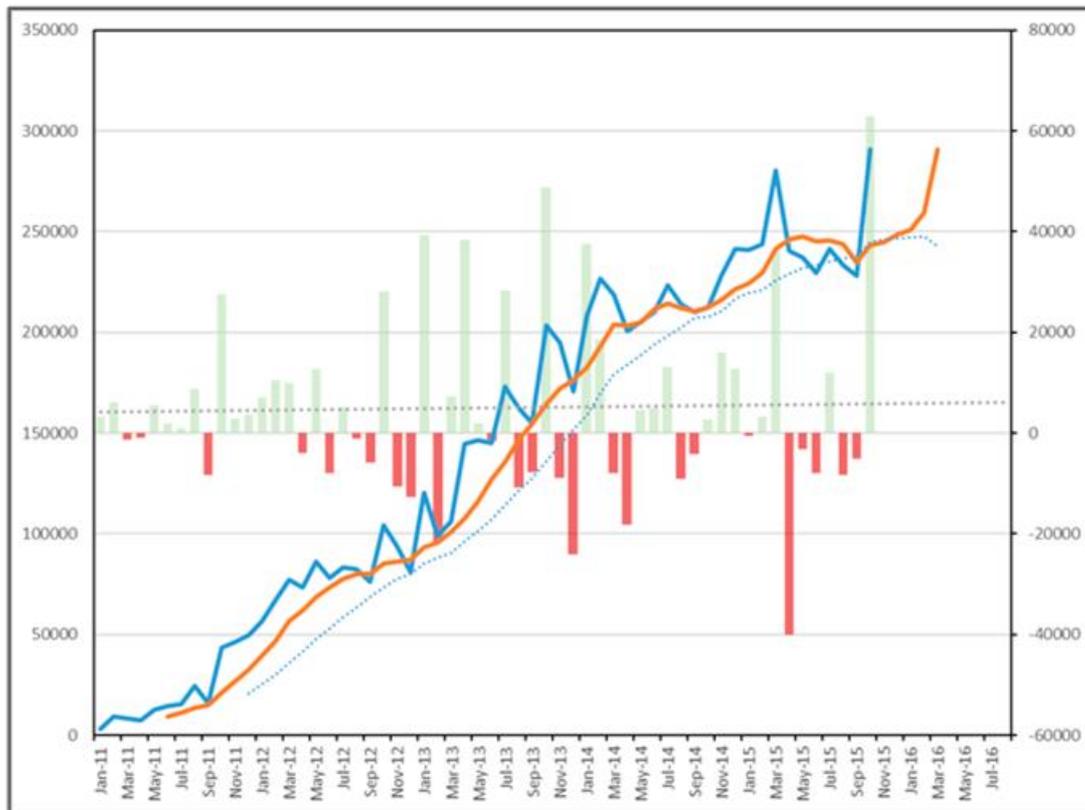
This contract was reported to be approved in an article on November 23<sup>rd</sup>, also by Darrel Moore (<http://www.ciwm-journal.co.uk/norfolk-approves-rdf-export-contracts/>). The contracts will be for four years and will be worth a total of £68 million.

### **7. England reports 14 per cent growth in exported RDF**

Article posted: November 13<sup>th</sup> 2015, by Ben Wood. <http://www.ciwm-journal.co.uk/england->

[reports-14-percent-growth-in-exported-rdf/](#)

This article reports that just under 3 million tonnes of refuse derived fuel was exported from England in 2015. The graph below shows the trend over time of monthly export. The blue line representing the amount disposed each month, the orange representing the six-month moving average and the dotted blue line the 12-month moving average. The green and red bars represent the difference month-on-month, i.e. how much more or less was shipped in a month compared to the previous, where red is less and green is more. The grey dotted line shows the overall trend in month-on-month difference.



## 8. CIWM: Rise in English and Welsh RDF export stalls

Article posted February 10 2015 by Gareth Simkins

This article reported that Environment Agency data shows growth stalled in 2014.

“More than 211,000 tonnes were exported from England alone during December, mainly to the Netherlands. In contrast, England and Wales together exported 167,000t the previous December and less than half that amount in December 2012. Overall, more than 2,370,000 tonnes were exported during 2014, a third more than in 2013 and two and a half times more than 2012. But the overall pattern for 2014 indicates that growth has now reached a plateau. December’s record is only marginally more than that established in February 2014.

The apparent halt in growth can in part be explained by more domestic energy-from-waste capacity coming online last year. This includes Veolia’s Four Ashes in Staffordshire, FCC Environment’s Lincoln Energy Recovery Facility and Viridor’s Exeter plant, which all opened in the spring. Another three opened at the end of the year.

The Netherlands is the main destination for English and Welsh RDF, accounting for more than 1,270,000 in 2014, or 53.6% of the total. Germany follows this at 485,000t (20.4%) and Sweden with 383,000 (16.2%).

A total of 59 companies participate in the export market, with Biffa, Sita, Andusia Recovered Fuels, FCC Recycling and Seneca Environmental Solutions accounting for half of it. But the bulk of them export relatively little – the bottom 30 sending only 96,500t abroad last year. The smallest, Roebuck Trading, exported less than 18t to Germany.

Ignoring subsidiaries, more than 80 continental firms received the waste. But only five accounted for half of it, namely Dutch firms AVR, AEB, Twence and HVC, alongside Sweden's Renova.

AEB's massive complex in Amsterdam was hit by fire in November and will not be accepting waste from the UK until April, leaving a gap of around 100,000t. AVR appears to be taking up most of the slack.

The year also saw the entry of a major new customer – Sweden's Mälarenergi, which opened the world's largest EfW line last year. It became the tenth greatest importer of RDF, despite starting to do so in June. And in November it received 14,000t – the second largest amount that month. Indications are that it will burn even more British waste this year."

**IEA Bioenergy**



**Further Information**

IEA Bioenergy Website  
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