



Department
for Environment
Food & Rural Affairs

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Refuse derived fuel market in England

Call for evidence

March 2014

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Introduction

1. The 2011 “Government review of waste policy in England” set out the Government’s view on the development of waste policy. The waste hierarchy¹ underpins that policy and is the key determinant for identifying how we should manage our waste. For energy from waste (EfW) this means pulling waste out of landfill while supporting effective recycling and reuse. Within the hierarchy, EfW has an important role to play but there needs to be an emphasis on “getting the most energy out of the residual waste, rather than to get the most waste into energy recovery”². This means ensuring that, where waste is used as a fuel, it is used in the most beneficial way.
2. The Government is keen to ensure that Refuse Derived Fuel (RDF) produced for both the domestic market and for export is limited to material which cannot be effectively recycled, and the combination of fuel and technology is sufficient to deliver clear environmental benefits.
3. There is a lot of interest in this area, as demonstrated by two recent reports: CIWM’s “Research into SRF and RDF Exports to Other EU Countries”³ and APSRG’s “Exporting Opportunity? Putting UK waste to work at home and abroad”⁴. APSRG’s report acknowledges that there is potential for environmental gains to be achieved through exports to efficient plants, but that significant opportunities remain for the UK to extract greater value from its waste domestically.
4. The export of treated waste from the UK to thermal treatment facilities in the EU has recently become a more favoured management route. There are concerns that this is resulting in the UK economy losing a valuable resource and that it provides an outlet for waste materials that would otherwise have been pushed up the waste hierarchy. Whilst there can be sound economic reasons to export RDF, the Government is concerned that minimally treated RDF being produced for export does not necessarily achieve the best environmental outcome in terms of the waste hierarchy or support wider aims around energy security and self-sufficiency.

¹ “Guidance on Applying the Waste Hierarchy”, Defra, June 2011

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf - based on Article 4 of the revised EU Waste Framework Directive (Directive 2008/98/EC) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0030:EN:PDF>

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69401/pb13540-waste-policy-review110614.pdf

³ The Chartered Institute of Wastes Management Research into SRF and RDF Exports to other EU Countries; July AMEC Environment & Infrastructure Limited, 2013; Doc Reg No. 33757/D040/rr001i4 [http://www.ciwm.co.uk/web/FILES/Technical/FINAL_SRF_RDF_REPORT_FOR_PUBLICATION_JULY_2013_\(2\).pdf](http://www.ciwm.co.uk/web/FILES/Technical/FINAL_SRF_RDF_REPORT_FOR_PUBLICATION_JULY_2013_(2).pdf)

⁴ Associate Parliamentary Sustainable Resource Group, December 2013 http://www.policyconnect.org.uk/apsrg/sites/site_apsrg/files/report/375/fieldreportdownload/apsrgreport-exportingopportunitypdf.pdf

Purpose of this call for evidence

5. This call for evidence is looking at the Refuse Derived Fuel (RDF) market in England, for both domestic use and for export. It asks whether there is a case for taking action, to ensure that the waste hierarchy is fully applied and the environmentally beneficial outcomes of alternative waste management routes are fully realised, for example by introducing a common standard.
6. In order to have a greater understanding of the market for production and use of RDF, we have a number of questions associated with the market and how any issues might be addressed. This call for evidence aims to fill the gaps in our evidence base to help us determine whether there is a need for some form of intervention to deliver the desired environmental outcomes and, if so, help us to develop workable policy options.
7. The full list of questions can be found at **Annex A**.

What we mean by refuse derived fuel

8. Refuse Derived Fuel (RDF) is a generic term used to describe fuel produced from waste that has undergone some sort of process, from minimal sorting and bailing to more complex mechanical treatments⁵. Materials for recycling and non-combustible materials such as glass and metals are generally removed with mechanical separation processing. The residual material can be sold in its processed form or it may be compressed into pellets, bricks or logs. Advanced RDF processing methods can remove or significantly reduce harmful pollutants and heavy metals.
9. RDF can be used in a variety of ways to produce electricity and/or heat including being used alongside traditional sources of fuel in coal powered-plants and in the cement kiln industry. It can also be fed into gasification modules and pyrolysis plants.
10. There is no formal definition or standard for RDF either in EU legislation or in domestic legislation. In the European Waste Catalogue⁶, RDF is classified as 19.12.10 (combustible waste) and falls under the classification description “wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified”.
11. Solid Recovered Fuel (SRF) is a subset of RDF having been processed to a greater extent than RDF. It is generally a more valuable form of RDF as it has a higher calorific value and low moisture content. SRF is produced to reach clearly defined

⁵. It may also involve dehydrating and/or sterilising the waste as part of the treatment.

⁶ http://www.environment-agency.gov.uk/static/documents/Leisure/EWC_31-03-09_CH.pdf

standards set by the end-user. One such standard is European standard CEN/343/ANAS, which is based on specifications for the use of SRF in cement kilns.

12. CEN/343/ANAS includes a classification for SRF based on four properties (the net calorific value, chlorine, mercury (the median value) and mercury (the 80th percentile)). Each property is divided into five classes with class 1 having the most desirable attributes and this desirability falling as the class gets higher. This is used to categorise the SRF produced so the end user can choose the SRF that is most suitable for their operation.

Who are we seeking evidence from?

13. This call for evidence will be of particular interest to:

- Energy from Waste operators
- Energy from Waste investors
- Local Authorities
- Waste companies
- Waste processing industry

Current situation and context

14. Both RDF and SRF remain classified as wastes and are regulated as such. Their production and use should therefore respect the waste hierarchy. When we talk about a market in RDF this is still in the context of the waste being recovered or disposed of.

15. Domestically most material classed as RDF will be used to produce energy. However, this is not classed as recovery unless the facility meets the requirements of the waste framework directive⁷. Disposal in EfW facilities where at least some energy is captured but which do not meet the efficiency requirements to be classed as recovery may still be a much more environmentally sound outcome than landfill. By way of example, using RDF composed of significant quantities of biodegradable material as a fuel for such facilities would avoid placing the biodegradable material in landfill where it would decompose to produce methane. The energy recovered from the biodegradable material in an EfW facility (regardless of its efficiency) would also be classed as renewable energy and count towards renewable energy targets.

⁷ Recovery is defined in Annex II of the [Waste Framework Directive](#) (Directive 2008/98/EC). R1 is “Use principally as a fuel or other means to generate energy” For mixed municipal waste there is a formula related to the efficiency of the plant with minimum thresholds that must be reached to constitute recovery rather than disposal. This also applies to RDF from mixed municipal waste

16. Generally, advanced conversion technologies (ACTs) require a higher specification fuel notably different in its properties from mixed municipal waste (MMW). It would be useful to know whether such plants are the main users of higher quality domestic RDF. This is more expensive to produce than the 'minimally' processed RDF that might go to a mass burn incinerator either domestically or abroad.
17. As a waste, RDF is subject to the rules surrounding transport of waste. This has implications for its export as there are restrictions on both what type of waste material can be exported and where it can go.
18. Mixed municipal waste cannot be exported. It needs to undergo some form of pre-treatment to turn it into RDF and then it can only be exported for energy recovery in a R1 compliant facility and not for disposal. This is to ensure waste is not sent to other countries for disposal and they do not incur the environmental impacts of disposing of our waste.
19. Most of the RDF going for export goes to R1 compliant thermal treatment facilities that are mostly burning mixed municipal waste from their own domestic sources. The current level of pre-treatment for RDF can be minimal, meaning that the waste is in essence very similar to unsorted waste in its nature. Government is concerned that the quality of RDF being exported in some cases may not be very high, with significant amounts of recyclable material remaining. This goes against the principle of making the best use of resources and undermines the waste hierarchy.
20. Waste is a commodity⁸ and as with any other commodity, we need to work within the context of a global market. One of the key principles of world trade being that countries should not discriminate between their own and foreign products, services or nationals. Therefore, there is nothing to prevent exports of waste (except on very limited grounds, such as to protect human health or the environment) and the global market principles must be respected.

Legislation

21. The revised Waste Framework Directive (2008/98/EC) provides the legislative framework for the collection, transport, recovery and disposal of waste. It requires all Member States to take the necessary measures to ensure waste is recovered or disposed of without endangering human health or causing harm to the environment. The Directive also requires Member States to take appropriate measures to encourage firstly, the prevention or reduction of waste production and secondly the recovery of waste by means of recycling, re-use or reclamation or any other

⁸ Whilst RDF sent abroad is the export of a commodity, it could also be seen as the 'import' of a waste management service to recover the RDF. For simplicity, and because it is the RDF that is physically moved abroad, this call for evidence refers to the export of waste rather than the import of waste management services.

process with a view to extracting secondary raw materials, or the use of waste as a source of energy (the waste hierarchy).

22. The Waste hierarchy for the treatment of all waste is transposed from the EU Waste Framework Directive into UK law through the Waste (England and Wales) Regulations 2011, the Waste Regulations (Northern Ireland) 2011, the Waste Management Licensing (Scotland) Regulations 2011, the Waste (Scotland) Regulations 2011 and the Waste (Scotland) Regulations 2012:

(1) An establishment or undertaking which imports, produces, collects, transports, recovers or disposes of waste, or which as a dealer or broker has control of waste must, on the transfer of waste, take all such measures available to it as are reasonable in the circumstances to apply the following waste hierarchy as a priority order—

(a) prevention;

(b) preparing for re-use;

(c) recycling;

(d) other recovery (for example **energy recovery**);

(e) disposal.

23. The legislative context for the export of waste is set out in the EU Waste Shipment Regulations (Regulation (EC) 1013/2006). These set out the procedures that must be followed when exporting waste for 'recovery' and 'disposal' purposes.

- 'Recovery' is defined under Article 3 (15) of the Waste Framework Directive (Directive 2008/98/EC) as "...any operation the principle result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy". The use of waste principally as a fuel or other means to generate energy is included as a recovery operation (classed as R1) in Annex II of the Waste Framework Directive.
- 'Disposal' is defined under Article 3(19) as "...any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy".

24. If waste is being exported to an identified thermal treatment facility classed as R1, it can be regarded as being 'recovered' in line with the Regulations rather than disposed of.

25. Article 3(5) of the Waste Shipment Regulations states that shipments of MMW are subject to the same provisions as shipments of waste destined for disposal:

“Shipments of mixed municipal waste (waste entry 20.03.01) collected from private households, including where such collection also covers such waste from other producers, to recovery or disposal facilities shall, in accordance with this Regulation, be subject to the same provisions as shipments of waste destined for disposal.”

26. The ‘UK Plan for Shipments of Waste’⁹ sets out the UK Government policy on shipments of waste for disposal to and from the UK. It prohibits the shipments of waste to and from the UK for disposal, apart from under certain conditions (e.g. emergency situations that may require the shipment of hazardous waste or trial runs in order to test a specific treatment technology). When this is read in tandem with Article 3(5) of the Waste Shipment Regulations, it means that the export of MMW from the UK for either recovery or disposal is not permitted as its export must always count as a disposal measure. Paragraph 11 of the ‘UK Plan for Shipments of Waste’ requires the UK Competent Authorities to object to any shipment notifications for waste that is prohibited under the Plan unless it is specifically exempted.
27. As a result of this, MMW must be made into RDF before it can be exported. It is possible to export RDF if this is for ‘recovery’ purposes to EU Member States and OECD countries.
28. As noted above, there is currently no clear definition of when mixed waste becomes RDF. Recital 33 of the Waste Framework Directive states that MMW “remains MMW even when it has been subject to a waste treatment operation that has not substantially altered its properties”. However, there is no further definition or criteria within the legislative framework that sets the level that pre-treatment MMW must undergo to be classed as RDF. As a result some operators class MMW as RDF after minimal treatment and there is concern that low quality RDF containing significant amounts of recyclates is being produced.

Trends in production and use

29. In 2011 (the latest figures we have) 330,730¹⁰ tonnes of RDF were received at both incineration and co-incineration facilities in the UK. This compares with approximately 24 operational EfW sites in England with a total operational capacity of 4.82 million tonnes of waste a year¹¹. It would be helpful to have further information on production including the number of facilities producing RDF in the UK and the total amount of RDF produced.

⁹ UK Plan for Shipments of Waste; Defra; 2012 ; Crown Copyright; PB13770

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69546/pb13770-waste-shipments.pdf

¹⁰ Source: The Environment Agency

¹¹ <http://www.wrap.org.uk/node/15031>

30. Exports of RDF have increased from virtually nil before 2010 and 13,258 tonnes in 2010 to 963,944 tonnes in 2012¹². The provisional figure for exports of RDF in 2013 is 1,586,946 tonnes¹³.

31. One of the main drivers for this trend is landfill tax. It has steadily increased from £8 per tonne of active waste in 1996 to £72 per tonne of active waste in 2013/14. The tax will rise again to £80 per tonne from April 2014 and there will be a floor under this so that the rate will not fall below £80 per tonne from April 2014 until 2020.

32. A report by Tolvik in 2011 “UK Waste Exports: Opportunity or Threat?”¹⁴ notes that capacity in the thermal treatment market has played a role in the increase in exports of RDF over recent years. A lack of spare capacity on the domestic market contrasts with significant overcapacity in Northern Europe (including Germany, Norway, the Netherlands, Denmark and Sweden). The net effect of this imbalance has been one of rapidly falling gate fees in Northern Europe as operators seek to fill their plants. Meanwhile, rising landfill tax in the UK has generated a significant gate fee differential between the UK and Northern Europe. This has provided an incentive for waste to be exported to Northern Europe as RDF rather than be treated domestically. It should, however, be noted that some of the incentives to export RDF going forward may be reduced in part by increased domestic treatment capacity from EfW projects that are currently under development in the UK.

33. The report by CIWM¹⁵ notes that

“There is a significant difference between the amount of RDF/SRF notified to the competent authorities for shipment and the amount actually exported. There are various reasons for this but it results in less than 20% of notified materials actually leaving the five countries.”¹⁶”

We would be interested to know the reasons why so much more is notified than actually exported to make such a difference to the figures.

34. The CIWM report places the average cost of exporting a tonne of waste to mainland Europe from the UK at around €80-100 roughly, broken down as:

- Baling & Wrapping - €5-10 per tonne
- On-land Transport (up to around 40 miles) - €10 per tonne

¹² Source: The Environment Agency

¹³ <http://www.letsrecycle.com/news/latest-news/energy/rdf-exports-top-1.5m-tonnes-in-2013>

¹⁴ http://www.tolvik.com/markets-and-data/reports/UK_Waste_Exports.pdf

¹⁵ The Chartered Institute of Wastes Management Research into SRF and RDF Exports to other EU Countries; July 2013; AMEC Environment & Infrastructure Limited; Doc Reg No. 33757/D040/rr001i4

[http://www.ciwm.co.uk/web/FILES/Technical/FINAL_SRF_RDF_REPORT_FOR_PUBLICATION_JULY_2013_\(2\).pdf](http://www.ciwm.co.uk/web/FILES/Technical/FINAL_SRF_RDF_REPORT_FOR_PUBLICATION_JULY_2013_(2).pdf)

¹⁶ The five countries are England, Wales, Scotland, Northern Ireland and Ireland.

- Administration & Port Costs – €5-10 per tonne
- Sea Transportation Costs - €0-15 per tonne
- Gate Fee - €40-60 per tonne

The cost of preparing residual waste into RDF was reported as being a further €15-20 per tonne.

35. We understand that an increasing proportion of the RDF exported is derived exclusively from commercial or industrial (C&I) waste. It would be helpful to have more evidence on this type of RDF, such as its quality and composition, and to have views on whether any course of action is necessary.

Environmental considerations

36. It is unlikely that RDF containing significant quantities of recyclable material would be the optimum solution for the waste in terms of environmental outcome. If recycled, that material could displace virgin materials with significant carbon gains. We are aware that in a small number of cases, the RDF may contain some recyclable materials that are particularly difficult to remove and the energy used attempting to do this may be worse in terms of the environment than allowing the recycle to be used for energy recovery. However, all recyclable material should be removed from RDF wherever possible and it should be relatively easy to do this in the majority of cases. We understand that recyclable material can currently end up in RDF as a result of the unintended rejection of such materials at the processing stage and it would be useful to have views on how this could be addressed.

37. Energy recovery is generally placed higher in terms of environmental performance than landfill. Processing waste into RDF for energy recovery abroad rather than disposing of the waste in a UK landfill would therefore appear to be preferable in terms of environmental performance. Many plants within the EU operate at much higher efficiency than those in the UK as they make much more effective use of heat so recovery abroad may also currently be superior to domestic recovery.

38. Recent modelling¹⁷ shows that as the wider energy mix decarbonises, increasing efficiency alone may no longer be sufficient to maintain the primacy of EfW over landfill in carbon terms, without careful consideration of both the energy output and the biogenic content of the fuel input. The biogenic content of the waste feedstock becomes a key determinant. If waste is processed in such away as the biogenic content falls below a certain level, combustion of the RDF, whether domestic or

¹⁷<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19019&FromSearch=Y&Publisher=1&SearchText=WR1910&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

abroad, could potentially give worse environmental outcomes than disposal to landfill.

39. This should not prevent biogenic material from being removed from the residual waste stream wherever it can be treated higher up the waste hierarchy. Removal of recyclates (including organic waste to treatment such as anaerobic digestion) is preferable to including these in the fuel fraction of residual waste. Instead, either consideration should be given as to whether and how the fuel fraction should continue to be used or the fuel fraction should be rebalanced through the improved recycling of the fossil wastes.

Renewable energy

40. The UK is legally required by the EU Renewable Energy Directive to source 15% of its total energy from renewable sources by 2020. The biogenic (biodegradable) portion of the RDF is considered 'renewable' and the energy contribution from this portion is counted towards renewable energy targets. The export of RDF means that some biogenic waste is lost to the UK and won't count towards its renewable energy targets when burned. However, this should be seen in the context that EfW provides a small proportion of total UK renewable energy and the primacy of energy recovery over landfill for biogenic waste in terms of environmental performance.

Availability of RDF on the domestic market

41. There is anecdotal evidence that the export of RDF to Northern Europe is leading to a decline in the amount of investment in EfW infrastructure in the UK. Financiers are concerned that a waste stream cannot be guaranteed as it can easily go abroad. Although this needs to be seen in the context of free trade between countries, this may be stopping investment in innovative and more efficient technologies that would be environmentally preferential options. There is also the concern that if demand from the importing countries declined, we would not have sufficient infrastructure within this country to recover the energy from the RDF and it would have to be disposed of to landfill.

Production of RDF with no end user

42. We have received anecdotal evidence that significant quantities of RDF are being produced, which are then being stockpiled. This would suggest that either too much RDF is being produced for which there is no market or that operators are speculating the market by producing the RDF and then stockpiling it until the market picks up. It would be helpful to have solid evidence on this issue, including the

amounts being stockpiled in this way and the market drivers for producing RDF that has no definite end use. We would also welcome evidence on whether there is a particular quality of RDF that is being stockpiled. It would be particularly useful to know whether there are uses for the full range of RDF composition or whether there is a middle ground where the RDF is of insufficient quality to be used as SRF but is too good to be used for mass burn plants.

43. Section 34 of the Environmental Protection Act 1990 imposes a Duty of Care in relation to controlled waste. The duty applies to any person or business that produces, imports, carries, keeps, treats or disposes of such waste or as a broker has control of such waste. All such persons are under a duty to take all such measures as are applicable in that capacity as are reasonable in the circumstances to: prevent the escape of waste; ensure waste is passed to an authorised person; pass on a written description of the waste so that others can comply with the legislation. The storage of waste including RDF requires an environmental permit or in some cases the registration of a relevant exemption. Failure to store waste other than in accordance with an environmental permit or registered exemption is an offence. The storage of RDF for long periods may cause local environmental issues, such as attracting pests and causing unpleasant odours as it decomposes. It can also present increased fire risk if not stored appropriately.

Policy changes and targets that might affect RDF

44. The introduction of new policy requirements and actions required to meet new and existing targets in the waste sector could have an impact on the production and composition of RDF in the future. These include:

- Under Article 11(1) of the revised Waste Framework Directive, from 1 January 2015 all organisations that collect waste must, when making arrangements for the collection of waste paper, metal, plastic or glass, ensure that those arrangements are by way of separate collection where separate collection is necessary for waste to be recovered in line with the revised Waste Framework Directive and where it is technically, environmentally and economically practicable to do so. This also means that where waste paper, metal, plastic or glass have been collected separately, all reasonable steps must be taken to keep them separate wherever this is necessary to provide high quality recyclates. The intention of this requirement is to promote high quality recycling and it should encourage the removal of greater amounts of recyclates from the residual waste stream, particularly plastic bottles.
- Article 11(2) of the revised Waste Framework Directive requires EU Member States to recycle 50% of household waste by 2020. It is likely that more food

waste, plastics and textiles will be extracted from the household waste stream in order to meet the target.

- Existing Producer Responsibility Regulations set targets which require packaging producers and others across the supply chain to recover and recycle packaging. This has successfully raised UK recycling rates. New targets for 2013-17 were set as part of the 2012 Budget, including challenging targets for plastic packaging which are aimed at achieving a 42% recycling rate by 2017. The intention of the target is to encourage the greater recycling of packaging and to generate the associated environmental and economic benefits from this. In order to meet the 2017 packaging targets for plastics, we will need to collect and recycle in excess of 500kt more plastics than we currently do.
- The European Commission is undertaking a scheduled review of the targets within the Waste Framework, Landfill, and Packaging and Packaging Waste Directives. The Commission is expected to produce proposals on legislative changes in May-June 2014 as part of a Communication on the Circular Economy and Resource Efficiency. It is not yet clear what the Commission's proposals will contain, although it's possible that new targets could form a part of these, should the benefits be shown to outweigh the costs. The Commission recently published the results of its consultation on this review, which suggested that there was wide-ranging support for higher recycling and recovery targets on packaging, particularly glass and plastic, tighter landfill diversion targets for biodegradable municipal waste, and increased or broader municipal solid waste (MSW)/household recycling targets.

Q1. A) What evidence do you have on how fully the production and use of RDF respects the waste hierarchy?

B) What evidence do you have that there are beneficial environmental outcomes relative to alternative waste management routes for RDF?

C) What evidence do you have on the need for some form of Government intervention in the RDF market?

Q2. What evidence and assumptions should we use in considering any action? For example in relation to:

- the level of processing done prior to exporting RDF and how this compares with the level of processing for RDF used domestically
- the waste streams and codes of waste being put into RDF

- the number of facilities producing RDF and the total amount of RDF produced
- the causes of recyclates entering the RDF stream, the cost implications of this and how this might be addressed
- the content of exported RDF, particularly any recyclates and the biogenic content
- the reason for the difference between the amount of RDF/ SRF notified to the Competent Authorities for shipment and the amount exported
- the main users of higher quality RDF on the domestic market
- how the composition of waste and RDF are changing over time
- the reasons for storing large quantities of RDF for long periods, the impact of long term storage on the quality of the RDF and how this could be prevented
- the extent to which policy changes and actions to improve the quality of recycling and/ or to meet the targets for packaging and household waste recycling are likely to affect the production, composition and marketing of RDF
- the composition and quality of RDF produced from C&I waste and need for action in this area
- sources of data on RDF

Q3. What evidence do you have as to what are the key drivers defining the RDF market?

A) What specifications are domestic and foreign buyers of RDF putting on its quality or composition?

B) Do you have any experience of the export of RDF affecting availability of RDF on the domestic market?

Q4. A) Can you provide evidence on the reasons for the production of RDF with no end user?

B) What evidence do you have on the amounts of RDF being stockpiled and the quality of this RDF?

Options for possible Government intervention

45. While the previous section is seeking evidence to determine whether any intervention is required, this section is concerned with what form it might take. We have received suggestions from several sources that the introduction of a standard for RDF would be a useful way forward. However, we would welcome evidence on other possible options for intervention.
46. With regard to a standard for RDF, the current system and definitions clearly leave significant ambiguity around the processing, composition and use of RDF and whether this delivers sufficient environmental benefits. Introducing clearer standards in some or all of these areas may help address Government's concerns and provide greater clarity for the sector. One of the recommendations in the APSRG report is that we should set a minimum processing level for the production of RDF, to make a clear distinction between 'waste-derived fuel' and untreated municipal solid waste. There have also been calls for standards relating to the management and operational aspects of RDF production and use rather than to the composition of the RDF itself. **Annex B** further explores the factors relating to the possible introduction of standards for the management, processing, composition or use of RDF.
47. When considering different types of intervention, it will be important to consider whether any perverse consequences may arise if they were adopted. Introducing a specific intervention that addresses one issue in the RDF market may unintentionally create problems in a different area of the sector. We would welcome evidence on any perverse outcomes that might arise from different types of intervention and how these could be mitigated.

Geographical coverage

48. Waste is a devolved issue and the devolved administrations are keen to understand the implications of any potential policy interventions by the UK Government. The Scottish, Welsh and Northern Ireland governments have all agreed to work with us on this in principle, and to consider the implications of the work for their devolved policy interests.
49. The Northern Ireland Environment Agency has produced a regulatory position statement on the sort of treatment needed before a waste can be classified as RDF rather than MMW. Under the statement, in order for waste to be changed from the code for mixed municipal waste (the 20.03.01 coding) to the combustible waste code (19.12.10), it must have undergone a treatment process which substantially alters its properties. In addition, the net calorific value (NCV) of the waste must be increased as a result of the processing.

- Q5. Can you provide evidence on possible options for intervention in the RDF market?**
- Q6. Do you have any evidence which would suggest potential intervention in the market could lead to perverse outcomes?**
- Q7. A) Can you provide evidence that shows that some form of standard would address the issues around RDF production and use?**
- B) If so, can you provide evidence on how any standard might be applied and what should be included?**
- Q8. What evidence do you have on suitable intervention measures for addressing the issues regarding the stockpiling of RDF?**

Implementation

50. If it was decided that introducing a formal standard or other intervention around the production and/or use of RDF was necessary, we would need to consider the form that the intervention should take, any necessary enforcement and its potential impact.

Type of intervention and enforcement

51. For any form of intervention we might take there will be options for how it could be introduced and enforced. For example if we were to introduce a standard, the options would include writing it into legislation or including the standard in an integrated enforcement policy statement from the Environment Agency or within a scheme administered and self-enforced by industry such as the PAS approach. Factors to consider include the cost of enforcing a standard in light of the Government's policy of removing red tape and reducing burdens. However, a formal standard would need to be robust enough to ensure compliance with its requirements. We would welcome your evidence to support the risks and benefits of adopting different approaches.

52. Depending on whether action is legislated the challenge of enforcement will be different. We would welcome any evidence you may have on possible types of enforcement that would not introduce unnecessary burdens.

Costs/ burdens

53. The Government is committed to reducing and avoiding unnecessary burdens on business, therefore it is important we fully understand what the consequences of meeting a standard for RDF or other type of intervention would be for the industry. We would like to understand the additional burdens or costs industry might face if it had to meet a standard or other type of intervention. We are aware that this would depend on the specific requirements introduced but it would be useful to have an indication of general costs and burdens that a standard or other types of intervention could impose on the industry.

Q9. What evidence do you have on different approaches to delivering an intervention e.g. legislation, enforcement guidance and the implications for delivery via that route e.g. new burdens and costs?

Q10. A) Do you have any evidence to suggest you might be subject to additional burdens or costs if a standard for RDF or other intervention was implemented?

B) Do you have evidence of any specific burdens or costs that small and medium enterprises (SMEs) might face?

How to respond

54. This Call for Evidence opens for responses on **12 March 2014** and will run for 8 weeks. The Call will close on **9 May 2014**. Responses should be sent by email if possible to efw@defra.gsi.gov.uk

55. Or by post to:

The Residual Waste Team
Defra
Area 2B
Nobel House
Smith Square
London SW1P 3JR

56. Any queries should be addressed to the Residual Waste team as above.

57. Respondents are requested to explain who they are and, in the case of representative groups, to give a summary of the people and/or organisations they represent.
58. We may not be able to consider your response if it arrives after the deadline. Please contact the Residual Waste team to discuss an extension if you think your response will be late.
59. Information provided in response to this Call for Evidence, including personal information, may be published or disclosed in accordance with the access to information regimes. These are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004.
60. If you want the information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals with, among other things, obligations of confidence. In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding.

Annex A Questions

Q1. A) What evidence do you have on how fully the production and use of RDF respects the waste hierarchy?

B) What evidence do you have that there are beneficial environmental outcomes relative to alternative waste management routes for RDF?

C) What evidence do you have on the need for some form of Government intervention in the RDF market?

Q2. What evidence and assumptions should we use in considering any action? For example in relation to:

- the level of processing done prior to exporting RDF and how this compares with the level of processing for RDF used domestically
- the waste streams and codes of waste being put into RDF
- the number of facilities producing RDF and the total amount of RDF produced
- the causes of recyclates entering the RDF stream, the cost implications of this and how this might be addressed
- the content of exported RDF, particularly any recyclates and the biogenic content
- the reason for the difference between the amount of RDF/ SRF notified to the Competent Authorities for shipment and the amount exported
- the main users of higher quality RDF on the domestic market
- how the composition of waste and RDF are changing over time
- the reasons for storing large quantities of RDF for long periods, the impact of long term storage on the quality of the RDF and how this could be prevented
- the extent to which policy changes and actions to improve the quality of recycling and/ or to meet the targets for packaging and household waste recycling are likely to affect the production, composition and marketing of RDF
- the composition and quality of RDF produced from C&I waste and need for action in this area
- sources of data on RDF

Q3. What evidence do you have as to what are the key drivers defining the RDF market?

- A) What specifications are domestic and foreign buyers of RDF putting on its quality or composition?
 - B) Do you have any experience of the export of RDF affecting availability of RDF on the domestic market?
- Q4. A) Can you provide evidence on the reasons for the production of RDF with no end user?
- B) What evidence do you have on the amounts of RDF being stockpiled and the quality of this RDF?
- Q5. Can you provide evidence on possible options for intervention in the RDF market?
- Q6. Do you have any evidence which would suggest potential intervention in the market could lead to perverse outcomes?
- Q7. A) Can you provide evidence that shows that some form of standard would address the issues around RDF production and use?
- B) If so, can you provide evidence on how any standard might be applied and what should be included?
- Q8. What evidence do you have on suitable intervention measures for addressing the issues regarding the stockpiling of RDF?
- Q9. What evidence do you have on different approaches to delivering an intervention e.g. legislation, enforcement guidance and the implications for delivery via that route e.g. new burdens and costs?
- Q10. A) Do you have any evidence to suggest you might be subject to additional burdens or costs if a standard for RDF or other intervention was implemented?
- B) Do you have evidence of any specific burdens or costs that small and medium enterprises (SMEs) might face?

Annex B: Factors relating to the possible introduction of standards

Processing

1. Processing needs to add value in environmental terms to the management of waste whether the end use is domestic or abroad. As already stated, the export of mixed municipal waste from the UK is not permitted. It must first be made into RDF before being exported for 'recovery' purposes to EU Member States and OECD countries. However the processing or pre-treatment required is not defined. There is a wide range of possibilities for processing, from simple sorting to remove recyclates to more involved crushing and shredding processes and equally a range of potential opportunities for intervention in how waste is processed.
2. Work on any processing standard for RDF would need to consider whether a minimum level of processing should and could be included and if so how that might be done and to what effect.
3. It is important to note that the Government holds a neutral position on technologies as it is not best placed to favour one technology over another, therefore any standard for RDF would not be able to include a particular process that would be tied to one type of technology.

RDF composition

4. While defining the process has advantages in ensuring sufficient steps are taken to remove key recyclates, it inevitably presents difficulties in ensuring standards sufficiently address the wide range of waste streams. It also risks not being able to adapt to developing technology. Defining the output in terms of properties of the RDF has potential advantages in terms of not restricting innovation to meet demands of specific waste streams. However, if incorrectly defined, there is the risk that it could drive fuel production with less overall recycling.
5. As the common link in the two approaches, a standard for the composition or properties of waste in order to be considered RDF could potentially address a number of concerns both in terms of production and use.
6. This standard could include defining RDF and/or what is not considered to be RDF. For example, as the UK Plan for the Shipment of Waste¹⁸ bans the export of MMW for disposal but allows the export (for recovery at an R1 facility) of RDF, a formal standard could include a definition of MMW and a standard for RDF that would clarify exactly when waste materials ceased to be MMW and became RDF.

¹⁸ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69546/pb13770-waste-shipments.pdf

7. The Waste and Resources Action Programme (WRAP) has published guidance on the definition and specification of Waste Derived Fuels (WDF) by way of a classification system¹⁹. This provides a classification of WDF properties for use by EfW facilities. The system is designed to help fuel users define the fuel parameters of WDF needed to power their facilities by the use of a system of classes similar to the classes for Solid Recovered Fuels. A lot of work has gone into the development of this system and it could form the basis for a formal standard for RDF, should this be taken forward.
8. The system classifies the fuel properties of WDF against 3 main criteria:
 - Economic (characteristics that will affect the economics of the fuel's usage, i.e. biomass content);
 - Technical (characteristics that will affect the performance of the combustion facility); and
 - Environmental (characteristics that will influence emissions to the environment).
9. This system was developed for UK EfW facilities to determine the most appropriate WDF to buy, so it may not be directly transferable as a whole to a broader definitional role. However, key elements such as biogenic content and calorific value could form the basis for determining specific properties that would comply with an RDF standard.
10. Any composition standard for RDF would need to address problems with the RDF market while proving practical to comply with and creating no undue burden on the industry. This would include considering the ease with which particular materials can be removed from MMW as well as the proportion of biogenic material and the presence of recyclates in the RDF.
11. Factors for the composition of RDF might include a maximum threshold for any recyclable materials that are particularly difficult to remove and how the WRAP standard might be applied. Trends in waste composition and how it is changing over time and the impacts of this would also be relevant.
12. It is important that a standard should not lead to unintended consequences, for example, a particular waste stream being drawn down the waste hierarchy (e.g. taking food waste out of anaerobic digestion) in order for the composition of RDF to meet a standard set.
13. It has been suggested that over-processed RDF may cause problems at plants, for example particularly pelletised waste that was too small to feed into the furnace by mechanical grab, and “fluffy” or “dusty” waste that got caught in the extraction systems.

¹⁹ http://www.wrap.org.uk/sites/files/wrap/WDF_Classification_6P%20pdf.pdf

Use

14. Use of RDF is the area where the clearest definitions already exist. All waste (whether RDF or unprocessed MSW) can only be combusted in plants that meet the requirements of Chapter 4 of the Industrial Emissions Directive²⁰.
15. In order to qualify as recovery it must be combusted in a plant that meets the requirements of R1 otherwise it constitutes disposal. As waste can only be exported for recovery, not disposal, this means that exported RDF must go to facilities that qualify for R1.
16. As qualification for R1 requires a minimum standard to be met there is the option to introduce higher standards to deliver better environmental outcomes or to look at additional criteria beyond the efficiency focus of R1.

Operational and Management Standards

17. A standard could potentially be applied to the procedures associated with the production, handling and use of RDF. This might cover the entire lifecycle of the RDF from the initial processing to its final end-use, including administration and associated documentation, transportation and storage.
18. Such a standard would help ensure the traceability of RDF and could assist the regulatory and permitting actions through the provision of a robust paper trail and facilitate compliance with the duty of care requirements. However, the level of any standard adopted and the monetary burdens on operators in the RDF sector would require careful consideration.

²⁰ Some gasification and pyrolysis plants are excepted in certain instances. The Directive states that *'This Chapter shall not apply to gasification or pyrolysis plants, if the gases resulting from the thermal treatment of waste are purified to such an extent that they are no longer a waste prior to their incineration and that they cause emissions no higher than those resulting from the burning of natural gas'*.