

REA position statement on Circular Economy in the EU



Introduction

The Renewable Energy Association (REA) is pleased to submit this position statement in response to the European Commission's public consultation on the Circular Economy. The REA's comments are made in light of our awareness of opportunities and constraints regarding circular economy and the European Parliament's resolution of 9 July 2015 on resource efficiency: moving towards a circular economy (PA_TA-PROV(2015)0266)¹. The REA has also responded to the Commission's on-line survey and broadly supports the European Parliament resolution of 9th July 2015.

About the REA

The Renewable Energy Association represents a wide variety of organisations, including generators, project developers, fuel and power suppliers, investors, equipment producers and service providers, and companies and public sector organisations involved with the management of biodegradable wastes. Members range in size from major multinationals to sole traders. There are over 750 corporate members of the REA, making it the largest renewable energy trade association in the UK. Within the REA, its Organics Recycling Group promotes the sustainable management of biodegradable resources, covering both aerobic and anaerobic technologies. The Wood Heat Association is a subsidiary of REA, the largest renewable energy industry association in the UK.

REA views

1. Towards Zero Waste

The REA supports mandatory source separated collection of biowastes² by 2020. This would greatly contribute to circular economy. We suggest that careful consideration is given to whether any exemptions are allowed for biowaste or a specific sub-fraction of it (such as garden waste), in specific circumstances. Issues to consider are:

- a. households located in rural areas,
- b. practicalities of collecting from building blocks and other high density dwellings and publicly or privately occupied work places where separate biowaste collection has not already been designed in,
- c. practicalities of collecting from a collection point that is near to building blocks and other high density dwellings and publicly or privately occupied work places where separate biowaste collection has not already been designed in,
- d. whether to exempt any individual premise of a business that generates less than a specified, low quantity of food and/or beverage waste per week, and

¹ P8_TA-PROV(2015)0266, Resource efficiency: moving towards a circular economy, European Parliament resolution of 9 July 2015 on resource efficiency: moving towards a circular economy (2014/2208(INI)). See <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2015-0266+0+DOC+XML+V0//EN&language=EN>

² The Waste Framework Directive's definition of biowaste is: 'biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants'.

- e. whether to set measures that prioritise the mandatory source separated collection of food and beverage wastes from any individual premise of a business that generates more than a specified quantity of food and/or beverage waste per week.

Annex A provides information about exemptions from Scotland's requirements³ for separate collection of food wastes. This provides an example of regulation which makes progress towards zero waste goals. In Scotland, early signs of the recent regulation's effects indicate that good progress is being made in food diversion from landfill and, according to our members' feedback, this is already creating new business opportunities.

In addition to mandatory source separated collection of biowastes by 2020, the REA calls for:

- ban on the disposal of biodegradable kitchen/catering wastes (solids and liquid fats, oils and greases) into a public drain or sewer, or in a drain or sewer that connects to a public drain or sewer,
- strict limitation of incineration without energy recovery to non-recyclable and non-biodegradable wastes to begin in 2020,
- mass burn incinerators with energy recovery, which are in operation before and including in 2020, to continue to treat the biodegradable fraction within residual wastes from municipal and industrial sources for the remaining lifetime of the facility,
- on-going allowance of the gasification and pyrolysis of the biodegradable fraction within residual wastes that arise from municipal and industrial sources.

Why mandatory source separated collection of biowastes?

Such a move should slow growth in production of Compost-Like-Outputs (CLO) and Digestate-Like-Outputs (DLO) produced from sorting and treating residual wastes at Mechanical and Biological Treatment facilities. In the UK, if not sent to a disposal or energy recovery operation, CLOs and DLOs are restricted to use in land restoration under waste regulatory controls, i.e. they are not allowed to be spread on agricultural land or in any market other than land restoration. Restoration sites are not uniformly spread across the country and this means that often materials have to be transported long distances to the nearest suitable site at considerable expense. Regulators in the UK are concerned about shortage of suitable sites nationally.

We agree with the Resource Association's following points: 'Comingled waste collection coupled with poor sorting at many UK Material Recovery Facilities (MRFs) are responsible for high contamination rates of materials destined for recycling, costing the UK recycling industry in excess of 50 million pounds annually⁴. Whilst it is acknowledged that a number of MRFs do produce high quality materials for recycling, mandatory separate collection of biowaste together with more emphasis on setting up systems for paper, plastics, metals and glass will help reduce contamination and improve the quality of our secondary raw materials.'

In the UK reduced tonnages of green (garden) waste are collected as a number of local authorities have changed from separately collecting this waste under general taxation for their services to households to extra, separate charging for households that opt-in to separate collection of their green (garden) wastes. More local authorities are likely to make this change unless legal requirements and/or policy drivers support separate collection of this resource at no extra charge to householders. The Department for Environment, Food and Rural Affairs's (Defra) statistics for the second quarter of 2014 showed that the amount of waste 'recycled or composted' by local authorities fell to 47.1 %. We believe that the described change of approach that a number of local authorities have taken was a contributory factor.

³ The Waste (Scotland) Regulations 2012

⁴ Resource Association (2012) Costs of contamination Report, available online [here](#)

When a local authority moves from separately collecting green waste financed by the general tax householders pay for local authority services to charging householders for its collection on an opt-in basis, a maximum of 50 % of households do this. After this kind of change, some householders transport their green waste to the local Household Waste Recycling Centre but the REA believes that many households put their green waste in their residual waste bin.

Measures that support the collection of greater quantities of source separated biodegradable waste increase the potential for making composts and digestates suitable for using in recovery and recycling applications, under waste regulatory controls or as resource with product status (where compliant with End of Waste criteria). Increased quantities of source separated biowaste available for anaerobic digestion would assist in the production of renewable energy, contributing towards binding 2020 targets for renewables under the Renewable Energy Directive.

Why prevent biowaste disposal to many drains and sewers?

We suggest 1.b above because fats, oils and greases (FOGs) when disposed into the drainage system mix with food and other sanitary waste, congeal and harden in the pipes. Over time this grows to form blockages. Using detergents or bleach may have some impact on clearing grease and other debris from the pipework beneath the kitchen sink, but these chemicals have little impact when they become naturally diluted in the sewer network. The use of food waste macerators only makes things worse in sewers by grinding up waste food, including any fats, and releasing it into the drainage network.

Water UK states that: ‘The water and sewerage companies in the UK respond to approximately 200,000 sewer blockages every year. There are several hundred thousand more which occur in customers’ own pipework, for which they have to arrange clearance and repair. In some parts of the country three-quarters of these are caused by fats, oils and grease. The clean-up costs for the water industry run to millions of pounds, costs which are ultimately passed on to customers through wastewater bills.’ See <http://www.water.org.uk/policy/environment/waste-and-wastewater/fats-oils-and-grease> for more information.

Why should source separated collection of biowaste precede progressive restrictions on the landfilling of most wastes?

This will reduce risk of over-investment in Mechanical and Biological Treatment capacity for treating residual wastes and other separately collected wastes that get traded on the market and redirected to MBT facilities.

The future role of EfW mass burn incineration, gasification and pyrolysis

As an update to our very short feedback above on these topics, the REA is likely to write to the Commission at a later date about changes under the ‘Towards zero waste’ part of circular economy, potential implications of the European Parliament’s recent resolution and our views on what would be more appropriate.

2. Definition of recycling and calculation of recycled tonnage

The following excerpts from section 1.4.6 of the European Commission’s ‘Guidance on the interpretation of key provisions of Directive 2008/98/EC on waste’ are useful for determining whether the inputs to composting and AD processes that produce composts and digestates that retain ‘waste’ status can be counted as recycled (subject to complying with Article 2(6) of the Decision on recycling targets). This guidance makes clear that inputs to composting and AD

processes that produce composts and digestates that achieve End of Waste status can be counted as recycled.

Excerpt 1: ‘The definition of ‘recycling’ under Article 3(17) WFD is: ‘any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.’

Excerpt 2: ‘EoW criteria for compost from biowaste at EU level are currently under discussion. For the purposes of this document, compost that has not ceased to be waste under any existing national standards and is used as a fertiliser is being recovered. However, regarding the question at what point a compost is recycled, Article 2(6) of the recently adopted Decision on recycling targets might be useful; it states ‘Where the target calculation is applied to the aerobic or anaerobic digestion of biodegradable waste, the input to the aerobic or anaerobic treatment may be counted as recycled where that treatment generates compost or digestate which, following any further necessary reprocessing, is used as a recycled product, material or substance for land treatment resulting in benefit to agriculture or ecological improvement’.

Excerpt 3: ‘Recycling includes any physical, chemical or biological treatment leading to a material which is no longer a waste.’

In Scotland and Wales measures have been taken which mean that only the inputs to composting and AD processes that produce composts and digestates that achieve End of Waste status can be counted as recycled. However in England, the inputs to composting and AD processes that produce composts and digestates that retain ‘waste’ status can also be counted as recycled (subject to complying with Article 2(6) of the Decision on recycling targets). The REA highlights that currently, individual governments can choose whether inputs in these latter circumstances can be counted as recycled. England’s recycling performance certainly benefits from the government’s guidance (choice) for England.

We note that in paragraph 35 of the European Parliament’s recent resource efficiency document (PA_TA-PROV(2015)0266)) the 6th bullet point signals desire to move to ‘..using the same harmonised method for all Member States..’ for reporting recycling and preparation for reuse. Does this mean the same method of calculating recycled tonnage (without specifying whether inputs to processes whose outputs remain waste can be counted as recycled), or the same method of calculating recycled tonnage AND specifying whether inputs to processes whose outputs remain waste can be counted as recycled? This will be an important decision.

Whatever decision is made, the following must be omitted from tonnage claimed to have been recycled at a ‘final recycling process’:

- contaminants removed at the start of or during the process,
- untreated, partially treated or fully treated biowaste sent to a disposal operation,
- untreated, partially treated or fully treated biowaste sent to an incineration operation (with or without energy recovery), and
- untreated, partially treated or fully treated waste of any type that is discharged to a drain or sewer.

In the context of biodegradable wastes, biowastes and the biodegradable fraction of residual wastes, a ‘final recycling process’ could be composting, anaerobic digestion, aerobic digestion, a

combination of one or more of these, or a biological treatment process that is part of a Mechanical Biological Treatment process.

The Commission should carefully consider the circumstances in which Mechanical and Biological Treatment Facilities can claim recycled tonnage and exactly what can be included in the calculation.

We believe the recommendations above support circular economy and the European Parliament's desire for '...preventing the reporting of discarded waste (landfilled or incinerated) as recycled waste..'

We also suggest that revision of the Waste Framework Directive includes a definition of 'recycling' which is specific to and appropriate for biodegradable wastes (including biowastes). We suggest that recycling in this context is defined as 'any recovery operation or anaerobic or aerobic digestion process which recovers energy, in which biodegradable waste materials are reprocessed into:

- products, materials or substances suitable for use – without any further treatment or minimum storage period - as a soil improver, biofertiliser, or ingredient in a medium that supports the germination and growth of plants (e.g. growing media, manufactured topsoils); and
- in the case of anaerobic or aerobic digestion, also biogas.

A WFD definition of 'recycling' which is specific to and appropriate for biodegradable wastes should assist correct application of the waste management hierarchy (and/or a resource management hierarchy if introduced in future and complements or replaces the current waste management hierarchy). Improved definition of recycling for biodegradable wastes should also reduce uncertainty over what is required for anaerobic digestion to be considered as recycling rather than the kinds of recovery that are not allowed to be counted as recycling.

3. A biodegradable waste/resource management hierarchy

The REA suggests that a biodegradable waste/resource management hierarchy, defined at EU level, would support the highest possible management of the arising wastes/resources across the EU.

Currently in the UK the Department for Environment, Food and Rural Affairs (Defra) is openly supporting AD as the environmentally best option for food waste⁵ yet AD is classified as recovery, not recycling, in Defra's Waste Hierarchy Guidance. Paragraph G 3.12 in Defra's Guidance on the legal definition of waste and its application⁶, on the subject of the waste management hierarchy, states that: 'The most sustainable and environmentally friendly option is to reduce the amount of waste which is produced in the first place. The hierarchy promotes this but also seeks to encourage the efficient use of waste as a resource. To this end, recycling is to be preferred to other recovery operations as in many cases recycling will have an ecological advantage in terms of the quantities of energy and raw materials used and saved.'

The use of digestate from AD for improving cultivated soils and contributing to crop nutrition has proven environmental benefits that should to be taken into account and in many instances this

⁵ Defra (June 2011), Guidance on applying the Waste Hierarchy, p 5. See <https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy>

⁶ Guidance on the legal definition of waste and its application, August 2012, PB13813, Department for Environment, Food and Rural Affairs, London. See <https://www.gov.uk/government/publications/legal-definition-of-waste-guidance>

resource use is interpreted as a form of recovery that complies with Article 2(6) of the Decision on recycling targets (i.e. enables input to the AD process to be counted as recycled).

A biodegradable waste/resource management hierarchy should be subject to regular review and whatever updates are necessary for taking account of the whole lifecycle of soil improving, biofertiliser, growing media, manufactured topsoils, other products that include treated biodegradable wastes (in solid or liquid form), and products derived from biogas (renewable electricity, renewable gas, renewable transport fuels). On-site and off-site utilisation of renewable heat should also be considered when carrying out whole lifecycle assessment and also be taken into account within the biodegradable waste/resource management hierarchy.

4. Resource efficiency indicators and Life Cycle Analysis research and development

Paragraph 18 of the European Parliament's resource efficiency document PA_TA-PROV(2015)0266 signals that product and service Life Cycle Analysis (LCA) '..should be based on the footprint methodology, measuring at least land, water and material use and carbon..'

To date, a number of useful LCA studies have been published that are relevant to options for biodegradable waste management. To the best of our knowledge, these studies have not been able to source sufficient, good quality data on the effects of applying composts and digestates to cultivated soils and partially or completely replacing mineral fertiliser and/or manure inputs to soils. Transport footprints of these bulky resources merits further consideration, along with implications of temporary storage of composts and digestates in the market place (after dispatch from the regulated waste management facility) before use. In addition, some food wastes and food packaging wastes are better suited to composting than AD (e.g. bones, egg shells, and compostable packaging). Composting and compost use should be better recognised/evaluated for its indirect offset of greenhouse gas emissions – this tends not to be fully appreciated as it isn't as obvious as renewable energy production. Further research and development of LCA in this context ought to play an important role in footprint methodologies used when calculating resource efficiency indicators.

The REA also supports the following points made by the Resource Association in its response to this consultation:

'In order to facilitate Member State buy-in to changing the methodology for measuring recycling, carbon based targets accompanied by other resource efficiency indicators such as land, water and material footprints⁷ would be welcome. Underpinned with use of a metric such as residual waste arisings per capita, this new package of measures would provide a necessary 'reboot' for target setting and measurement across Europe that would encourage the circular economy approach to resources that is so widely desired.'

5. Improving participation in separate collections of dry recyclables and biowastes and increasing amounts collected per participating household/premise

Rules in support of circular economy should require EUMSs to put adequate resources into educating citizens on how to correctly dispose of their wastes, improving local authority and waste collection crews tools and methods for effective bin policing, and require the use of incentives and penalties that positively influence participation, the quality of separation achieved and the amounts collected per participating household/premise. Rules in support of circular economy should also require that adequate resources are put into educating management and floor staff - in the food retail, catering and hospitality sectors - about waste stream segregation for recycling. This should be part of their

⁷ Friends of the Earth Europe, 2014, The Four Footprints: Increasing our resource efficiency, reducing our social and environmental impacts. See <https://www.foe.co.uk/page/four-footprints> and <https://www.foe.co.uk/sites/default/files/downloads/four-footprints-45569.pdf>

ISO accreditation. Achieving what we have described in this paragraph would help to minimise contamination at source, which is the most effective place for over-coming waste quality problems.

Better source separation of recyclables and biowastes could also be achieved if there is more transparency about what happens to citizens' wastes once they have left the household. A recent YouGov survey in the UK showed that around 70% of respondents wanted more information about what happens to recycled materials and 32% would be more likely to source separate their recyclables if they did know. The Resource Association's "End Destinations of Recycling Charter"⁸ provides a document for local authorities to voluntarily sign, to provide their stakeholders with information about what happens to recyclates (i.e. dry recyclables). A similar voluntary measure should be developed and provided for biowastes.

6. Improving the quality of separately collected biowaste

When calculating recycled tonnage, subtracting the tonnage of contaminants removed at the start of and during a 'final recycling process' (e.g. a composting or anaerobic digestion process in this context) would encourage efforts to reduce contamination in separately collected biowaste. Local authorities, businesses and public sector institutions would be more willing to invest in educating householders, employees and contractors about what should go in the biowaste bin, what shouldn't go in it and to visually inspect the contents (as far as practicable during collection). Such a move would also encourage the use of incentives and penalties which aim to increase participation in biowaste collection schemes/services and reduce contamination in bins for biowastes.

To achieve better education/training, inspection and policing of the quality of biowaste separately collected we call for a requirement similar to this excerpt from The Waste (Scotland) Regulations 2012:

- '(2L) It shall be the duty of any person who produces or manages controlled waste, or who as a broker or dealer has control of such waste, to take all reasonable steps to—
- (a) ensure that the waste meets any quality standard for the management of material included in the waste;
 - (b) ensure that the waste is managed in a manner that promotes high quality recycling; and
 - (c) prevent any contravention by another person of this subsection.';

The rules should ensure that where biowaste is intended to be claimed as recycled after treatment, all parties who influence its quality have a duty to ensure it is of adequate quality to be recycled. Quality criteria should take into account technical capabilities at the facility/facilities that will manage the waste, operational constraints and the legally agreed financial terms. Contracts for the treatment of biodegradable wastes should be required to include clauses that:

- enable the rejection of any delivery that is contaminated to such an extent that it cannot be sufficiently decontaminated,
- provide option to additionally charge for extra work to remove contaminants or to reject any delivery that is of marginal or borderline quality.

The rules should also ensure that where biodegradable wastes (including biowaste) are separately collected with intention to be recovered that all parties who influence its quality have a duty to ensure it is of adequate quality to be recovered. The same points as we have made above for intention to recycle apply in the context of recovery.

The REA's Organics Recycling Group has developed and published a Feedstock Quality Package⁹, which is for voluntary use and is particularly relevant to those who separately collect and treat

⁸ See <http://resourceassociation.com/node/14355>

⁹ See <http://www.organics-recycling.org.uk/page.php?article=2905>

biodegradable wastes that are made into composts that achieve UK End of Waste criteria (i.e. become products rather than remaining subject to waste regulatory controls). The package includes a position statement, an input specification template and visual assessment guidance. The anticipated EU Circular Economy rules should require that guidance is made available on the acceptable quality of separately collected biowastes and provisions that should be included in biowaste management contracts.

Separation of food waste from secondary and tertiary packaging and other contamination needs to be enforced as the waste producer's responsibility to improve the availability of food waste for recycling.

The time lag between biodegradable waste (such as food waste and green/garden waste) arising and starting treatment at the composting / AD facility needs shortened as much as possible. I.e. best practise should be direct delivery of source segregated organic waste to the treatment plant without unnecessary intermediate storage facilities (including Waste Transfer Stations) as this leads to degradation of organic wastes during storage and transportation, production of odours and loss of waste potential for recycling. In some circumstances, indirect delivery can lead to additional contamination getting into the biodegradable waste.

Separately collecting biowaste of sufficient quality is very important because:

- a. most markets are highly sensitive to physical contaminants (glass, metal and plastic) in composts and digestates, especially those that achieve End of Waste (product) status,
- b. lightweight, flexible plastics are particularly difficult to remove when screening compost and solid, fibre digestates (without also removing a significant proportion of the compost/fibre digestate with the plastic),
- c. lightweight, flexible plastics tend to float in liquid digestate storage tanks so further management steps are required to prevent them from being spread on land with the liquid digestate,
- d. the majority of complaints handled by the UK's certification scheme for compost products¹⁰ have been about the presence of plastic.

7. Compostable bags, liners and other forms of packaging

Circular Economy rules should require that compostable bags, liners and other forms of packaging that are intended to be fed into a process that composts source separated biodegradable wastes must be:

- required to be independently certified compliant with European Norm 1343211 and have an independently certified minimum bio-based C content of 50 %, and/or
- independently certified compliant with a standard or published criteria for home compostable packaging that is officially recognised as acceptable by the European Commission or an EUMS's competent authority, and have and have an independently certified minimum bio-based C content of 50 %.

¹⁰ <http://www.qualitycompost.org.uk/>

¹¹ BS EN 13432, Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging

Any packaging that is not independently certified compliant with EN 13432 and/or an officially recognised standard or published criteria for home compostable packaging is not likely to adequately biodegrade in a small, medium or large scale composting process nor in AD processes that include a composting phase. Such packaging will be difficult to efficiently and correctly identify and is likely to cause significant losses to useable compost / digestate output during screening / centrifuging and, in the worst cases, can prevent composted / digested material from achieving product status (i.e. compliance with UK EoW criteria for composts or UK EoW criteria for digestates).

The REA calls for further development of EN 13432 in respect of digestible packaging where the digestion process does not include a composting phase.

In Milan (1.3 million population), where householders were given kitchen caddies for food waste and rolls of compostable bags, and every resident was provided with access to separate food waste collections, food waste recycling rates have quadrupled. Milan now extracts 85% of the city's food waste that used to arise in the residual wastes. Contamination of the food waste stream has fallen from 4.4 to 3.4 % and almost half of the biowaste collected is in the compostable carrier bags provided to customers in Milan's shops. This is a good example of how separate collection of food waste, provision of compostable bags and re-use of compostable carrier bags as caddy and food waste bin liners has supported growth in circular economy.

8. Codes of Practice for monitoring contamination in separately collected biowastes

Quality is crucial in driving separately collected biowaste up the waste management hierarchy and reducing the costs of their downstream biological treatment and increasing their use in land-based recycling and recovery applications.

Circular Economy rules should require each EU Member State to develop and maintain a fit-for-purpose Code of Practice (CoP) that must be used for monitoring contamination in biowaste. The CoP would report on input volume, reject volume and the volume of the product (i.e. the recycled or recovered output material), as well as including best practice on quality management. Such an initiative would improve awareness of the importance of biowaste quality, provide transparent information on contamination to local authorities and industry, and encourage changes that result in improvements to the quality of separately collected biowastes.

9. On-site renewables in the agri-food sector

On-site renewables have a role to play in future-proofing the agri-food sector. In particular, smaller scale on-site AD in the farm, rural community and SME industrial sector can make valuable contributions to circular economy. The great benefit of on-site AD in the agri-food sector (on farms, in rural communities and within the premises of Small and Medium size Enterprises) is that vegetable processing residues, food production residues or farm manures/slurries can be converted into energy that can be used on-site or within a rural community.

There is also a good case for small scale AD on farms that accept and treat food/beverage waste from their local community. This happens in EU countries such as Germany and Austria but is not yet specifically supported by government in the UK. It should be and the necessary technology is commercially available.

There are a number of ways in which small scale and on-site AD can support the development of the circular economy in the food and beverage sector. Environmental impacts and production costs can be reduced by;

- making use of production residues on-site rather than hauling them off site for landfill or biological treatment elsewhere (e.g. larger scale, centralised composting or AD),

- making use of liquid effluents on-site rather than discharging them to sewer or transporting them more costly off-site biological treatment processes,
- converting biodegradable materials into energy that is fed back into the on-site production,
- replacing a significant proportion the site's energy needs with a decentralised, on-site renewable supply,
- facilitating the clean-up of wash waters and other effluents to allow grey water recycling and re-use,
- reducing the business's impact on the municipal water treatment plant, thus improving its capacity for water and sewage wastes from the local community,
- avoiding the disposal of bio-residues to landfill as part of a wider strategy to maximise on-site recycling, and
- contributing towards development of low carbon manufacturing with minimal environmental impact.

Circular Economy measures should encourage small scale and on-site AD in rural communities and promote awareness of the wider benefit of smaller scale renewables for decentralised energy generation.

10. Better planning and information sharing for developing the right capacity amongst the right types of infrastructure

Planning and waste authorities should be required to work together to ensure that the right capacity is available amongst the right types of infrastructure. Amongst other things, this means taking into account planning applications for facilities that manage private sector wastes as well as facilities for managing wastes from households, the public sector, and other sources where the local authority has provided the collection service.

11. Estimating the effects of waste prevention actions and gathering and making data available on waste arisings from a wider range of sources

Circular Economy rules should require EUMSs to estimate, as accurately as possible, the expected tonnages saved through waste prevention and minimisation actions. Such estimates will help to guide further investment in new infrastructure according to needs. Over-estimating waste prevention will risk holding back investment, while under-estimating it is likely to create over capacity.

In the UK, data on the weight and composition of commercial and industrial (C&I) sector wastes is not commonly collected. The collection of this data, and its consolidation and analysis, is essential to understanding waste mix and generation per industrial sector. Although more data is becoming available, it is currently not sufficiently widely available and complete to allow the modelling and analysis that is more common in municipal waste. Without good data it is difficult to identify factors such as the success of minimisation campaigns. More work is needed to assess the quantity and quality of feedstock and how that relates to current and planned capacity.

12. Supporting benefits to ecosystems and ecosystem services via increased use of composts and digestates

Drivers and how sustainable use of composts and digestates confers benefits

The Seventh Community Environment Action Programme¹² requires that by 2020 the nutrient cycle (nitrogen and phosphorus) is managed in a more sustainable and resource-efficient way (see its paragraph 28(f)) and that efforts to reduce soil erosion and increase soil organic matter are increased (see its paragraph 28 (vi)). The sustainable use of composts and digestates made from biodegradable wastes helps meet these requirements and so it makes sense to encourage increase in their sustainable use.

To date the benefits of applying composts and digestates to soils have been partially quantified, much of the research having focussed on their effects in agriculture (on the receiving soils and crop responses). Their mineral fertiliser replacement value can be readily calculated using current prices for mineral fertilisers¹³. It is an on-going challenge to calculate the financial value of improvements to soil structure and workability that have been observed following repeated applications of composts and digestates. Please see Annex B for more information.

Carbon sequestration in soil has been recognised by the Intergovernmental Panel on Climate Change (IPCC) and the European Commission as one of the possible measures through which greenhouse gas emissions can be mitigated. Research carried out in the USA by the Environmental Protection Service estimates that centralised composting of biodegradable wastes results in net carbon storage of **0.20 million tonnes of CO₂-e** per wet [fresh] tonne of biodegradable inputs composted and applied to agricultural soil¹⁴.

The REA also highlights the following quote from a recent issue of the European Commission publication 'EC Science for Environment Policy'¹⁵: 'Native soils are thought to take up more of the greenhouse gas methane than land used for farming. This study shows that, while agriculture can exert an adverse impact on soil methane uptake, the application of soil conditioners like compost may compensate for loss of the methane sink function. The researchers propose new land management strategies based on this finding.'

The Climate Change Commission's recent report¹⁶ recommends the introduction of: 'firm measures to preserve the fertility and organic content of important agricultural soils, to achieve the stated goal for all soils to be sustainably managed by 2030'. The use of composts and digestates (as well as manures, slurries and other agricultural residues) can significantly contribute to meeting this goal. Depending on soil condition, crop nutrient requirements and other biodegradable resources available at the farm/holding, composts and digestates can:

- partially or completely replace mineral fertiliser inputs,

¹² Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D1386>

¹³ See <http://www.wrap.org.uk/content/compost-calculator>

¹⁴ US Environmental Protection Agency, Summary of GHG implications of composting: <http://www.epa.gov/climatechange/wyacd/waste/downloads/composting-chapter10-28-10.pdf>

¹⁵ EC Science for Environment Policy, Compost and climate change: a novel mitigation strategy?, 23 July 2015, Issue 422. See http://ec.europa.eu/environment/integration/research/newsalert/pdf/methane_climate_change_mitigation_by_compost_soil_422na5_en.pdfhttp://ec.europa.eu/environment/integration/research/newsalert/pdf/methane_climate_change_mitigation_by_compost_soil_422na5_en.pdf

¹⁶ Reducing emissions and preparing for climate change: 2015 Progress Report to Parliament, Summary and recommendations, Committee on Climate Change, London. See http://www.theccc.org.uk/wp-content/uploads/2015/06/6.738_CCC_ExecSummary_2015_FINAL_WEB_250615.pdf

- following repeated applications, improve soil health and increase soil organic matter content, and
- help reduce soil compaction of farmed soils, which helps to reduce run off from soil surfaces into water ways.

Opportunities to support circular economy

Collectively, the Water Framework Directive¹⁷, the Nitrates Directive (1991)¹⁸, cross compliance rules (mainly Regulations (EU) No. 1306/2013, 640/2014 and 809/2014) and regulations made in EU Member States which set out standards for Good Agricultural and Environmental Condition (GAEC) and rules for Nitrate Vulnerable Zones aim to protect water and soil ecosystems and promote good farming practices. Although they include some provisions that support the good practice storage and use of bulky organic fertilisers and soil improvers, the relevant parts of them and associated guidance should explicitly acknowledge that composts and digestates made from source separated biodegradable wastes are a renewable resource and confer benefits when used according to good practice.

Good Agricultural and Environmental Conditions (GAECs) documents set a range of standards developed to address soil erosion, soil organic matter, soil structure, ensuring a minimum level of maintenance, avoiding the deterioration of habitats and protection and management of water. Within GAEC, two of the seven measures that are key:

- GAEC 4 – Minimum soil cover – protecting soil against erosion
- GAEC 6 – Maintenance of soil organic matter

As an example of current lost opportunity, on the subject of ‘maintaining the level of organic matter in soil (GAEC 6)’ the Department for Environment, Food and Rural Affairs’s ‘Cross compliance in England: soil protection standards 2015’¹⁹ the text only covers the subjects of not burning crop residues (and exceptional circumstances), not burning ‘specific vegetation’ outside the burning season, and activities that are not allowed in species-rich and semi-natural habitats and forestry.

Circular Economy rules should require (or policy should recommend), at least, that EU Member States’ guidance in support of GAEC rules strongly encourages the use of bulky organic fertilisers and soil improvers/conditioners (such as composts and digestates). Requiring the inclusion of such encouragement in updated GAEC rules would be even more effective, if possible to do so. The REA also calls for improved terminology and clearly definition of what the terms mean. In some of the current texts composts and digestates fall under the term ‘organic manures’, which in England, Wales and Northern Ireland doesn’t help farmers/growers to think of composts and digestates.

Circular economy rules should require EU Member States to establish programmes for educating farmers and growers about maintaining soil health, prioritising those who manage the repeated cultivation of soils for growing monoculture crops (e.g. maize and vegetables). The education should cover the importance of soil organic matter and good ways of maintaining and enhancing it. Ley crops make important contributions and education should include returning crop residues to soils and the good practice use of farm manures/slurries and bulky organic fertilisers and soil improvers,

¹⁷ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02000L0060-20140101>

¹⁸ Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0676>

¹⁹ See <https://www.gov.uk/government/publications/cross-compliance-guidance-for-2015>

particularly composts and digestates made from source separated biodegradable wastes. Examples using facts and figures from research can work very well.

In the UK food and farming assurance scheme rules have great influence over whether farmers and growers use composts and digestates made from source separated biodegradable wastes. This may also be the case on some other EU Member States. Circular economy policy should encourage these schemes to urge farmers/growers to maintain and enhance soil health and recognise the positive contributions that can be made by using bulky organic fertilisers and soil improvers/conditioners (such as composts and digestates).

Increased use of composts and digestates in all relevant markets should also be supported. In part, this could be driven by Circular Economy rules that require EU Member States to implement policy tools that support use of these renewable resources for improving relevant ecosystems and ecosystem services. For example, an encouraging step in this direction is Defra's Action Plan on Payments for Ecosystem Services²⁰ looks at how sustainable management of ecosystem services can be incentivised through direct payments from the beneficiaries of those services (whether public or private).

The REA calls for circular economy measures that recognise composting and digestion of biodegradable wastes as activities that contribute to the maintenance or restoration of ecosystems and ecosystem services, provided that inputs to these biological treatment processes result in compost or digestate outputs that are recycled or otherwise recovered by application to land or use in growing media, manufactured topsoils and other products that support plant germination and growth.

Financial challenge

Composts, solid fibre digestates and liquid digestates (whole and separated liquor) do not supply as much plant available nitrogen, phosphorus and potash as mineral fertilisers do when compared in terms of kilogrammes of these nutrients per fresh tonne applied to soil. Their organic matter and moisture content means they are relatively bulky and costly to transport and spread on land when compared with mineral fertilisers. However we suspect that subsidy of compost and digestate use, through the Basic Payments Scheme under Cross Compliance, would not be supported by the European Parliament and Council even though this would do much to support circular economy. This makes it even more important that EoW criteria for composts and digestates remain achievable (see our comments in section 13) and that adequate funds are made available for research that aims to quantify the beneficial effects of using composts and digestates for improving soils and providing nutrients in agriculture and horticulture (where plants are grown in soils).

13. Bio-nutrients: Lack of EU-wide quality standards for recycled materials

Current rules allow national quality standards to be developed and used

Some consultees' responses (to the on-line survey's question 5.1) call for EU-wide quality standards for bio-nutrients, which the REA anticipates would include End of Waste (EoW) criteria for composts and digestates made from source separated biodegradable wastes. Such standards are not necessary because the Waste Framework Directive already includes a mechanism for any EU Member State to establish its own, national EoW criteria (that include all necessary requirements that

²⁰ Developing the potential for Payments for Ecosystem Services: an Action Plan, Department for Environment, Food and Rural Affairs, London, May 2013. See <https://www.gov.uk/government/publications/payments-for-ecosystem-services-pes-action-plan>

enable composts and digestates to establish market share in all markets that are addressed by the criteria), subject to approval under the Technical Standards and Regulations Directive (98/34/EC).

The information provided in JRC-IPTS report²¹ is a helpful resource to use when an EU Member State is considering and/or developing national EoW criteria for composts and digestates. In addition the European Compost Network has developed a Quality Assurance Scheme Quality Manual which aims to 'provide the necessary background information and standardised documentation to build up a European Quality Assurance Scheme (ECN-QAS) for composts and digestate' [products]. This facilitates independent, third party compliance with the ECN-QAS Quality Manuals's specified requirements for the operational process management of composting and digestion, the selection of input materials and compost and digestate quality.

EU Member States are allowed to make bi-lateral agreements to accept each other's EoW criteria when compost, digestate and growing media products that contain them are traded between their borders. The existing mechanism for establishing national EoW criteria is adequate and it is a shame that many EUMSs other than the UK have not yet used this opportunity.

Technical challenges in harmonising minimum quality of compost and digestate products across the EU

Together, differences between EUMSs in terms of input materials, process design and operation, business models and financial support present a considerable challenge when drafting EU-wide quality standards. The Commission Directorate-General GROWS's proposals applicable to composts and digestates are likely to include minimum 'stability' criteria, which will effectively require more processing than is usually done in the UK, where input materials contain a lower proportion of lignin-rich wastes (e.g. woody plant tissues). The UK AD industry is heavily invested in 'wet digestion' of food and drink wastes so any future move to select a single EU-wide minimum stability level (such as that currently applicable in Germany) could put pressure on UK industry to digest input materials for longer than is optimal for maximising the rate of biogas production (i.e. total biogas yield per tonne of input waste would go up but the yield per unit of time would go down).

Costs of transition for countries with already established national EoW criteria and potential disadvantages from early renegotiation of contracts

With national EoW criteria already in place in the UK for compost and digestate industries, certification schemes and laboratories, would prefer not to endure the significant costs that will arise if EU-wide EoW criteria for these resources enter into force (we understand that the Commission is likely to include such criteria in proposals for revision of the EU Fertilisers Regulation, due by the end of 2015 as part of the Circular Economy package of documents).

In addition, change of legal requirements would trigger early contractual renegotiations between many producers of compost and digestate products and their biodegradable waste supply clients (e.g. local authorities). Some producers expect that negotiations would include pressure from clients to reduce the gate fees charged per tonne of biodegradable waste accepted for treatment, largely due to local or regional increase in competition for input materials since the current contract was agreed. Localised over-capacities for digesting and/or composting biodegradable wastes (however they have come about) should not put unreasonable pressure on producers to treat biodegradable wastes more cheaply than budgeted in their business models.

²¹ European Commission Joint Research Centre, Institute for Prospective Technological Studies, 2014, End-of-waste criteria for biodegradable waste subjected to biological treatment (compost & digestate): Technical proposals, Seville, Spain, Report EUR 26425 EN, ISBN 978-92-79-35062-7 (pdf). See https://ec.europa.eu/jrc/sites/default/files/eow_biodegradable_waste_final_report.pdf

Proposed criteria for minimum ‘agronomic value’ will put UK compost products at a competitive disadvantage (the following paragraph is an excerpt from the UK trade bodies’ December 2014 response to Commission Proposals for revision of the EU Fertilisers Regulation²²).

‘DG ENTR’s proposed minimum requirements for ‘agronomic value’ (organic carbon, total nitrogen, total phosphate and total potash) are so high for the ‘organic fertiliser’ (OF) category that the large majority of our composts products (see Annex 1) would not qualify. Although the large majority would qualify for the ‘organic soil improver’ (OSI) category its minimum ‘agronomic value’ requirements are lower. Due to these differing requirements OSI will be perceived as lower value than OF, and so the large majority of UK composts would be disadvantaged when compared with material that qualifies for the OF product category.

Proposed criteria for minimum ‘agronomic value’ risk major loss of product status amongst UK digestates (the following paragraph is an excerpt from the UK trade bodies’ December 2014 response to Commission Proposals for revision of the EU Fertilisers Regulation).

‘DG GROWS’s proposed minimum levels for organic carbon in OF and OSI categories will disqualify all UK liquid digestates (whole digestates and separated liquors) whose data we have analysed, these having been used as ‘product’ in UK markets. Nearly all of these digestates also would not qualify as OF because their concentrations of total nitrogen, phosphate and potash are lower than DG ENTR’s proposed minimum concentrations. In our dataset, all separated fibre digestates would not qualify as OF because their concentrations of organic carbon are too low, and nearly 22 % of them would not qualify as OSI for the same reason. REA has sent detailed, anonymised data analysis to DG ENTR as evidence underpinning statements in items 3 and 4. Annex 1 provides statistics calculated from the same dataset of UK EoW digestates.’

The REA remains highly concerned that the Commission has no further plans for industry consultation on details of a revised EU Fertilisers Regulation (should the Commission decide that a revised EU Fertilisers Regulation is required), that criteria for minimum agronomic value of OF and OSI product categories are likely to remain much the same as proposed (see above) and that consequently nearly all UK digestate could no longer be placed on the market as product and circular economy would be curtailed by the higher costs and longer timescales associated with using digestates under waste regulatory controls. In addition, a minority of UK compost products would fail to qualify as OF or OSI and for the affected producers the implications of this resource reverting to waste status will be adverse (e.g. less supplied to the growing media market and many soft landscaping projects).

14. EoW criteria for compost oversize sent to non-WID biomass combustion plants

Circular Economy measures should encourage development and use of national End of Waste criteria that allow cleaned up woody oversize material to be used as fuel in biomass combustion plants that are not registered under the Waste Incineration Directive. Eligible oversize should only be material from processes that compost source separated garden/plant tissue wastes and untreated/uncontaminated wood wastes from specified ‘clean’ sources. ‘Cleaned up’ in this paragraph’s first sentence mean that steps have been taken to remove at least a very high proportion of physical contaminants.

Such encouragement may accelerate the further development of existing national EoW criteria in the UK for compost made from source separated biodegradable wastes.

²² UK trade bodies’ views on Commission proposals for revision of the EU Fertilisers Regulation, ADBA, ADOWG, CIWM, ESA & REA, final version, 05/12/2014. See http://www.organics-recycling.org.uk/dmdocuments/141205_UKTradeAssociations_comments_on_EU_Fertilisers_Reg_final_version.pdf

15. Enforcing compliance

Circular Economy rules should require EU Member States to provide adequate resources for enforcing compliance with regulations and applicable standards. In the case of Refuse Derived Fuels produced in the UK, enforcement procedures need to be applied where there is non-compliance with waste regulatory controls.

Annex A – The Scottish example of exemptions from requirement for separate food waste collection

The Waste (Scotland) Regulations 2012 require many businesses that generate controlled waste²³ and local authorities to have separate food waste collections (amongst others) unless they are located in rural area. Excerpt:

(2F) It shall, from 1st January 2014, be the duty of any person who controls or manages a food business that produces controlled waste to take all reasonable steps to ensure the separate collection of food waste produced by the business.

(2G) The duty in subsection (2F) does not apply to food waste—

(a) produced on premises in a rural area;

“rural area” means a remote small town, accessible rural area or remote rural area as described by reference to postcode units in table 2 of “Defining Rural Areas and Non-Rural Areas to support Zero Waste Policies”(c), published by the Scottish Government on 13th March 2012;”;

(3) An authority need not arrange for a receptacle to be provided under subsection (2) if—

(a) the property is in a rural area, and the authority considers that the separate collection of dry recyclable waste from the property would not be environmentally or economically practicable; or

(b) the authority considers that dry recyclable waste if not presented in a receptacle will be deposited at a bring site.

Scottish Government has defined ‘rural area’ in a separate document²⁴, this being:

‘Remote Small Towns’ - Settlements of between 3,000 and 10,000 people, and with a drive time of over 30 minutes to a Settlement of 10,000 or more.

‘Accessible Rural Areas’ - Areas with a population of less than 3,000 people, and within a 30 minute drive time of a Settlement of 10,000 or more.

‘Remote Rural Areas’ - Areas with a population of less than 3,000 people, and with a drive time of over 30 minutes to a Settlement of 10,000 or more.

The document includes a list of postcodes and these have been translated into a ‘postcode finder’ tool where businesses can enter their postcode to see whether they are in an exempt location.

²³Any business that produces less than 50 kilograms of food waste a week is exempt.

²⁴Defining Rural and Non-Rural Areas to Support Zero Waste Policies, The Scottish Government, Edinburgh, 2012. See <http://www.gov.scot/Publications/2012/03/5755/downloads>

Annex B – Benefits from using composts and digestates

Financial value of key nutrients required by plants

WRAP's Compost Calculator (see <http://www.wrap.org.uk/content/compost-calculator>) shows the financial values of readily available forms of nitrogen, phosphate and potash in compost and digestate when compared with inorganic fertilisers.

In addition to the readily available nutrients, composts and digestates contain nutrients in more complex forms which will become available for crop uptake in future seasons. For example, composts have a low readily available nitrogen content (5%), but a high total nitrogen content (11kg/tonne of green/food compost) which will contribute to soil nitrogen supply. They also contain other nutrients and trace elements that plants need in lower amounts than nitrogen, phosphate and potash.

Key findings from the Waste and Resources Action Program (WRAP)'s DC-Agri research project²⁵

Minimising impacts of extreme weather events

Regular incorporation of compost and digestate to land has shown to increase the plant available water capacity (AWC). This will vary according to the soil type, but has been shown under the Waste and Resources Action Program (WRAP) funded DC-Agri trial to increase the AWC by an average of 5% across the trial sites. This enables crops to withstand short periods of drought and also reduces the need for irrigation which is costly and energy intensive.

The same trial also noted that soils that had received continuous applications of compost (up to three years) showed a decrease of 2% in their bulk density across a range of soil types and up to 9% after nine years of repeated applications of compost. The benefits of improved soil porosity mean that the ground is less likely to be prone to flooding as the soil pore size is increased, making it more resilient to extreme weather events.

Improving soil organic matter content

Use of mineral fertilisers does not add any organic matter to soils. Figure 1 shows that applications of composts and digestates resulted in notable increases in soil organic matter content.

The organic matter in composts and digestates assists in binding together soil particles, which supports better soil structure and assists in the supply of nutrients to plants. An additional benefit is the increase in microbial populations which result from the addition of compost and digestate. In the DC-Agri trials, after 9 years of compost application there was a 15% increase in microbial populations. This improved overall soil health which in turn supported plant health.

²⁵ DC-Agri, Digestate and Compost in agriculture. See <http://www.wrap.org.uk/content/digestate-compost-agriculture>

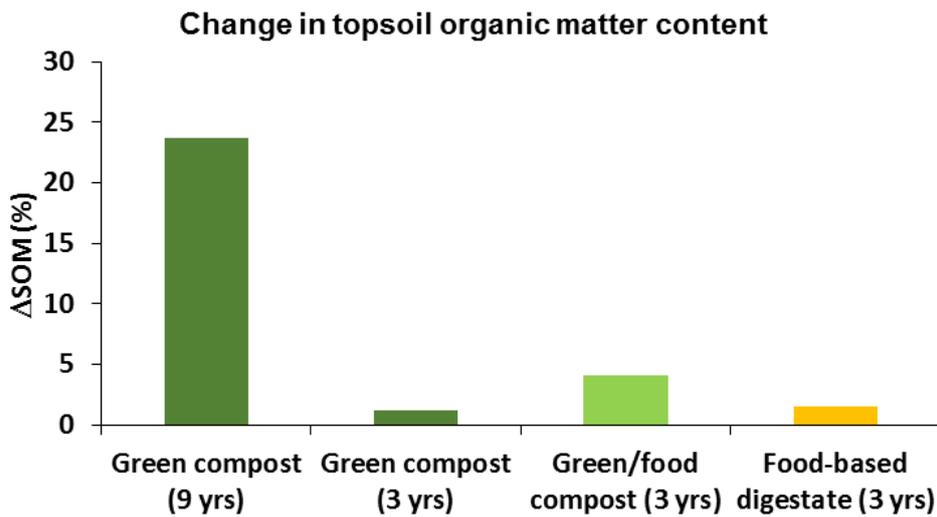


Figure 1. Change in soil organic matter content relative to the ‘control’ fertiliser only treatment (Δ SOM) averaged over all sites used in the WRAP funded DC-Agri project

Improved soil structure and workability

As agriculture has intensified over recent years, the size of machinery used has also increased in size, which has led to greater risk of degrading soil structure through compaction. Associated negative impacts on the environment include soil erosion, reduction in effective use of nutrients in the soil and in some severe cases, additional loss of agro-chemicals into the surrounding environment and aquifers.

The addition of compost and digestate to soils over a three year period has been shown to reduce the soil ‘shear strength’ (a measure of the density and level of force required to work the soil). Consequently, less energy is required to cultivate soils that have received organic matter and this reduces associated tillage costs. In the DC-Agri trials a 5% reduction in ‘shear strength’ was noted.

~ End of REA position statement ~