apse membership resources

Briefing 17–08 February 2017

Why reducing contamination in materials collected for recycling is becoming more critical.

Key issues

- Contamination of recycling collections is a major issue for many of the UK's waste collection authorities, affecting recycling rates and the income received from reprocessors and MRF's.
- Co-mingled collections produce high recycling collection volumes, but do they produce high quality recyclables suitable for reprocessors?
- Recent regulations requiring MRF's to check the quality of materials going through their facilities are putting extra cost on MRF operations which is being reflected in the income being given to local authority waste collection services, it is also leading to greater rejection levels of poorly sorted materials being delivered to their facilities
- Recent moves by waste importers such as China, to improve the quality of recyclable materials they receive has meant low quality recyclable waste with high contamination levels are no longer being accepted.
- There is a growing view that source separated recycling collections are the only way to ensure the collection of high quality materials, which will then give manufacturers the surety that investment in product design and developing manufacturing processes using high quality recyclable materials will be sustainable.

Overview

Across the UK there are a wide variety of different recycling collection systems and some would say this is leading to confusion amongst residents as to what can and can't be recycled and also, into which container, bag or bin such waste should go. The Government via the EU has introduced the TEEP Regulations (2015), which aimed to improve the quantity and, more importantly, the quality of materials sent to material reclamation facilities (MRFs). These regulations seek to ensure that reprocessors and manufacturers will be more assured that the materials they will eventually receive will be usable in their reprocessing activities and thus help support the aims of a circular economy.

Initially, there was concern that the collecting of recyclables via a commingled collection system would not meet the quality standards demanded by TEEP, and that the only alternative would be to introduce the separate collection of materials, most likely through a kerbside box or bin system.

Local authorities were worried that such large scale changes would be costly because of the need to adapt or change systems that they may already have had in place.
However, European guidance states that *"the aim of separate collection is high-quality recycling, the introduction of a separate collection system is not necessary if the aim of high-quality recycling can be achieved just as well with a form of co-mingled collection."*
This clear statement has meant that many local authorities have argued that their system of collection can deliver quality recyclables without the need for separate collections. This view is shown to be preferred option as in a recent APSE survey, of those waste collection authorities surveyed, over 82% were carrying out co-mingled collections.
However prior to 2015 and the introduction of TEEP, an earlier piece of legislation is now causing many local authorities to re-consider the value of co-mingled collections due to the fall in commodity prices and increasing gate fees at MRF's.

The Material Reclamation Facilities Regulations (2014)

Coming into force in April 2014 as part of the amended Environmental Permitting Regulations these mandatory regulations, like TEEP aim to drive up the quality of recyclables. Any MRF receiving over 1000 tonnes of mixed waste each year, of which the largest proportion is made up of the key recycling materials (glass, metal, paper and plastics) mixed together will be subject to testing to ensure that materials are of a high quality in relation to being free of contaminants, which includes proper storage of materials to prevent contamination. It is estimated that for a large MRF this could equate to an extra cost of over £50,000 per annum plus £2,000 for the cost of the regulatory bodies monitoring and administering the sampling scheme. This will obviously mean that there will be a cost to the MRF and therefore this will ultimately be reflected in a reduction in gate fees as MRF's try to recoup these costs.

MRF's began their sampling in October 2014 and their results are on the WRAP website under the Materials Facility Reporting Portal. The Regulations via the Portal require qualifying Materials Facilities (MRFs) to provide quarterly details of the mixed waste tonnage received from each supplier and the output tonnage despatched by four specified material streams. Under the Regulations MRFs are also required to take samples of the input and output material so that the average percentage of target, non-target and non-recyclable material can be estimated. Samples must be taken for every 160 tonnes of mixed metal, glass, paper and plastic material received before October 2016, dropping to 125 tonnes after this date with an average weight of 60kg per sample. This data will enable the market to obtain a greater understanding of recycling quality, through the transparency of data in this area.

This drive to increase quality could have a number of impacts on those authorities which collect co-mingled recyclables. If local authorities deliver materials which have a high level of contamination, this would affect the ability of the MRF to meet its requirements and to get the best price for the materials it is selling on to reprocessors. Thus loads from local authorities which do not meet the MRF requirements would face rejection. This will result in an increase in disposal costs to the local authority concerned, as they would need to look at alternative routes to dispose of the rejected load. In addition for those authorities which still receive recycling credits, income would fall as would the authorities recycling rate.

Quality material will become critical both from the viewpoint of input and output. Furthermore the increased availability of data, will mean that MRF's will not be wanting to release data which shows they are producing poor quality recyclables as this will affect both their standing with local authorities and reprocessors. It is likely MRF's which consistently fail to meet quality standards could become unsustainable and thus the availability of MRF's geographically could reduce, which means local authorities would need to travel greater distances to use them and the possibility of less favourable contracts with MRF's in the future.

Therefore there is a need to reduce the amounts of contaminants entering the kerbside bin or container.

Householders place recyclables in the wrong bin for a number of differing reasons, including:

- Not knowing what can and cannot be recycled.
- Uncertainty as to which bin recyclables should be placed in
- Unwillingness to take part in recycling
- A lack of space in their residual waste bins
- Lost or stolen recycling bins

As well as individual behavioural traits, geographical and wider social influences can also impact on contamination rates such as:

- Densely populated terraced housing where space is at a premium and residents may not have space or want several recycling bins
- Areas where there is a large concentration of privately rented accommodation e.g. HMO's
- Areas with transient populations
- residential areas with a mix of commercial premises
- residential areas with a large concentration of high rise dwellings

To address these issues local authorities have largely adopted two approaches to try to resolve the problem of contamination, these are technological improvements and better communication with residents. Regarding the technological improvements, these have occurred largely at MRF's where new machinery has significantly improved sorting and ultimately capture rates of recyclable materials. An example of this is the use of optical sorters which sort paper from plastic and cans at a rate which is far greater than if manually sorted.
In order to improve communication with residents organization such as WRAP produce advice and guidance notes as to how best to engage with residents.
Local authorities themselves often work together across district boundaries to produce information leaflets and awareness raising campaigns, a good example being the work being carried out by Greater Manchester Waste Authority. http://upandforward.recycleforgreatermanchester.com/

Is source segregated waste collection the way forwards?

It is argued that co-mingled collections can increase recycling rates, but what needs to be considered is the difference between materials fit for recycling i.e. uncontaminated, and the collection rate of materials, which includes non-recyclables or contaminants which must be removed at the MRF. The better the quality, then the better the economic value and ability to use the materials to produce goods over and over again. So whilst collection rates may be high in co-mingled collections, due to contamination the quality means little is of real value to MRF's and reprocessors.

Reprocessors, and indeed the public themselves as consumers, demand that recycled goods are as good as non-recycled goods. Therefore there is a need to understand that when putting materials out for recycling, the more careful we sort them into the right bin, then the better the quality of materials sent to the MRF and ultimately to the reprocessor. It should be considered that the reprocessor who receives them, may well be making goods we could be purchasing in the very near future.

Local authorities have a duty to achieve best value from their services and getting the best from the recyclables we collect is not just about collecting more, but ensuring that what we collect has value, that is, its quality prevents it being returned due to it having been poorly collected i.e. contaminated.

The responsibility for ensuring quality however, does not rely solely on the collection service, but must begin in the home. We as individual consumers must see what we use as a resource with value, so that when we put it in our bin, we don't see it as waste, but as a future product we could eventually purchase or use and therefore ensure we do not mix it with other materials which may cause it to become contaminated. In this way, if and when, source separated recycling collections are introduced the quality of material will hopefully be higher.

The desire to improve material quality is not just about being 'environmentally-friendly' and using resources sustainably, but it is now an economic imperative, for as seen, the MRF Regulations are placing additional costs on these facilities which can be reflected in lower gate fees, but also mixed and low quality recyclables attract lower prices. China, one of the major importers of recyclable materials for reprocessing has now placed restrictions on low quality imports. Introduced in February 2013, 'Operation Green Fence' aims to prevent low quality, poorly sorted recyclable waste being imported. In the first 6 months of its introduction over 800,000 tonnes of recyclables and scrap were rejected. This change of approach has been brought about because of the fact most of China's recyclers are small-scale , often family-owned, low technology firms where unsound reprocessing techniques have led to acid pollution of land and waterways, emissions of toxic fumes from burning and poor health among workers.
China has placed a 1.5% limit on allowable contamination on each bale of materials imported. With a heavy reliance upon China as a market for recyclable materials the west has obviously had to take serious note of this initiative and is beginning to look at the quality of the materials it exports, the MRF Regulations being a good example of the type of approach needed to achieve this increase in quality.

This move by China has called into question the sustainability of relying on sending our wastes to developing countries such as Vietnam, Malaysia and Indonesia. Instead there is a drive towards developing

more home-grown reprocessing facilities and domestic recycling markets. This will require more sophisticated handling and sorting technology to ensure quality materials are available and suitable for reprocessors. Tied into this is the aims of the' circular economy' whereby what we produce can later, by design, be recycled or re-used in a sustainable manner without creating waste or environmental damage. The circular economy requires manufacturers to be proactive in creating sustainable designs and using recycled materials in preference to virgin materials. An additional benefit of creating a domestic recycling infrastructure is that it will create jobs and increase economic growth. Without this approach then there is no future for collecting materials for recycling and ultimately they will either be incinerated with some element of energy production or landfilled.

Conclusion

Local authorities face many challenges, perhaps the greatest being dealing with the loss of funding whilst still being expected to provide more customer-orientated services to a growing population. Therefore wherever there is a chance to increase income, or promote economic growth, then it is in their interest to pursue this opportunity. By making sure quality is a key driver when collecting recyclable materials then there will be a greater option to sell such materials to both domestic and global markets.

It is critical that local authorities and their residents keep the end user in mind, which means the domestic 'disposing of' and collection of recyclable materials in carried out in as clean a manner as possible. Such practices will achieve the best economic and environmental results. This then needs to be supported by industry which gears itself to develop and manufacture sustainable products which use these high quality materials, whilst looking at how they can reduce waste during and after the manufacturing process.

Source separate collections must therefore be seen as the optimal collection methodology, an approach already being widely promoted across Wales and Scotland which have some of the highest recycling rates in the UK, both aiming for a zero-waste society. However TEEP also applies in these countries, but recent EU discussions has suggested that TEEP may be removed and higher recycling targets introduced. Obviously this may now change with the UK's decision to leave the European Union on the 23 June 2016.

Regardless of recent political decisions, if the UK is to improve the quality of its materials collected for recycling and take advantage of the opportunity to develop a domestic recycling manufacturing infrastructure, then the collection of source segregated recyclable materials will be the path to follow.

APSE Comment

APSE recognises that a move to source segregated recyclable waste collections will be extremely costly for many authorities, but equally APSE members are reporting that for many materials they are no longer receiving any income , in fact many are now paying to dispose of some of their waste through their MRF facilities.

A recent WRAP report has shown that gate fee charges have increased significantly over the past few years. The report also states that looking to the future, the majority of local authorities questioned (65% or 99 local authorities) said they expected MRF gate fees to increase. The factors cited for this were market prices for sale of recovered materials and the quality of input material. It is clear therefore that there is a need to improve quality to improve input and hopefully improved quality will lead to higher prices for commodities. In addition the need to improve quality of material collected has global health and environmental benefits as can be seen from the problems China has been suffering in relation to pollution and human health caused by the importing of poor quality recyclable waste.

By improving the quality of recyclable materials there will be a greater opportunity to engage with reprocessors and manufacturers within the UK, who with a promise of such materials may be far more willing to invest in new facilities than at the present time. This is particularly relevant as the world market for recyclables is now demanding higher quality.

TEEP at the moment allows local authorities to continue to collect recyclables via a co-mingled approach, and there may well be an argument for this to continue for more robust recyclable wastes where some contamination and damage won't impact on their suitability for reprocessing. But from an economic and environmental viewpoint recyclable waste which has been separated and presented in a clean manner will always provide the most benefits.

Ultimately there is a need to deliver quality across all waste streams and this can only be achieved by communicating the real value of 'waste' from start to finish and ensuring this is understood by all who come into contact with it, be it the resident buying a plastic bottle through to manufacturer developing new ways of designing and manufacturing products that will allow the plastic bottle to be re-used or recycled time and time again.

Therefore APSE feels that wherever possible recyclable wastes should be collected separately in order to optimise the sustainable use of resources many of which it should be remembered are finite, and in this way the aims of the circular economy can be met.

APSE does recognise that the transition to a source segregation will be difficult and lengthy for some local authorities due to existing contracts and the resources which have been dedicated to fund and deliver co-mingled collections. However when new contracts are being considered or procurement exercises entered into, then source segregation should be at the forefront of local authorities thinking in order to get best value out of recyclables collected. APSE will be calling upon Government in England to provide financial support for this transition which will allow the meeting of their aims and targets in relation to creating a more sustainable society.

Wayne Priestley, APSE Principal Advisor