

Summary Points for Plastics.

- Total tonnage of dense plastics and film in the Hampshire household waste stream is estimated to be 60-80KT per annum.
- The total tonnage in the commercial stream is more difficult to estimate but could be as high as 179KT.
- Use of plastic packaging is growing due to both substitution from glass and other materials and consumer trends (eg bottled water). Unlikely that starch based “biodegradable” plastics will make significant inroads in the immediate future due to relatively high costs.
- Currently only Bottles (mainly PET and HDPE) are collected via kerbside MRF (approx 2,000T per annum). These are used in a variety of quality/high value end products.
- There is a pressing demand from high household recyclers (i.e. the most enthusiastic recyclers in society) for an outlet for other plastics (film, pots etc).
- PI has a commitment in the current business plan to explore options for collecting, handling and end markets.
- Developing stable long term markets and relationships with re-processors is the key to placing material on the market.
- There are few viable end markets for mixed plastics. At present these include export to Far East. While the global nature of supply and demand through the shift in manufacturing to low wage economies is recognised, some have concerns over the ethics and sustainability of this option.
- The only other option under development is a polymer cracking project proposed by a major UK based multinational company. This would be very large scale requiring 100KT of polyolefins per year to be viable. The proposed location for the process is a UK refinery a long distance from the South of England.
- It would be preferable to separate higher value plastics i.e. HDPE and PET and continue to sell these to processors. This would not affect the cracking process.
- This process would not be suitable for non-packaging plastics, eg scrap WEEE casings, ELV components, toys etc.
- This project is gathering momentum but investment is so significant that the plant required could only be developed in parallel with a reliable input stream. This project is exciting but would require a high degree of strategic commitment from a number of parties.
- The Polymer cracking proposal is economically viable, the main issue will be the cost of the collection system. Midland Glass estimate £300 per tonne from bring sites. Kerbside collection costs not known.
- Due to the low weight, high volume nature of plastic packaging, a large scale system would need sustainable transport to end markets, most probable solution is short sea shipping from dockside.
- Would need a dry handling facility for increasing weight to volume ratio plastic. Chipping gives better “densification” than bailing.

- Midland Glass Co is considering investing in a MRF for plastics in the UK. The process would be automated as far as possible, using optical sorting technology.

Commercial Plastics Recycling

- Most commercial plastics recycling utilises just processing scrap. There is relatively little recycling of post consumer plastic packaging from commercial sources or other post consumer plastics.
- Based on EA data for the UK and calculating a crude pro-rata ratio for Hampshire based on population, it is estimated that around 8,500T of plastic such as pallet film from retail premises, was recycled from industrial and commercial sources.
- Project Integra authorities are considering co-collection and MRF sorting of mixed dry recyclate including bottles from SMEs.

Option 1 – Status Quo

- PI will consider trial methods for collection and extraction of polyolefins from waste stream without diverting PET and HDPE away from current high value market.
- PI will also be developing a communications and awareness strategy that aims to boost capture and quality of kerbside collected material.
- Some PI authorities will trial co-collection of commercial recyclate from SMEs alongside household recyclate. Material would be MRF sorted.
- The above options might be expected to bring very modest increases in the tonnages of bottles (NB a doubling of current performance would only net 4KT per annum) over the next 3-5 years.
- **New Infrastructure Required: New Infrastructure Required:**
 - Collection – Small scale trial involving one or two vehicles.
 - Handling – Use existing depot or MRF facilities to sort
 - Processing – material collected during trial likely to be exported pending polymer cracking demonstration facility.
- **Impact on Recycling Rate** – negligible, but volume/visual impact for participants should be significant.
- **Impact on Residual Waste** – improves densification of residual waste for landfill.

Option 2 - Stretching Best Practice

- Capturing 50% of household plastic packaging via kerbside collection could yield an estimated 35KT a year, equivalent to a third of the feedstock required for a UK polymer cracking plant. This could be augmented using the same resources to collect post-consumer plastic from SMEs.

- The impact on facilities in terms of separately handling this volume of material would need to be assessed.
 - This level of recycling would have a limited effect on tonnages but could reduce *volumes* of residual household waste significantly, thus visually reinforcing the impact of recycling to householders.
 - The reverse of this is that additional capacity would be required throughout the process stream for storage, transport and sorting, especially if collecting packaging plastics via the co-mingled (MRF) route. The alternative is to collect as a separated stream in sacks. One option may be to collect separately at the same time as glass. This would require greater education and commitment from householders. While this system is likely to be more cost-effective on a per tonne basis, the volumes collected may be lower unless incentives are given.
 - The reduction in volume would also extend the life of landfill sites. Although the Hampshire Household waste strategy is to use landfill as a last resort, this will continue to be the main sink for commercial waste.
- **New Infrastructure Required: New Infrastructure Required:**
 - Collection – Could require either vehicles for separate collection or increase to existing RCV fleet picking up mixed dry recyclate.
 - Handling – MRF capacity, automated sorting facility to extract PET and HDPE, facility to chip and load ships, dockside facility for transshipment to remote refinery.
 - Processing – Single process for UK, likely to be a long distance to Hampshire initially. If the process proves successful, polymer cracking process could be licensed to other refineries eg Fawley in due course
 - **Impact on Recycling Rate** – Recycling rate would only increase by 4% if 50% of household plastic packaging is captured. However this would dramatically reduce volume of household waste and the perceived impact by householder could be significant as householder has more impression of volume than weight.
 - **Impact on Residual Waste** - improves densification of residual waste for landfill.