

The Way Forward for Birmingham's Waste

Birmingham Friends of the Earth, November 2017

Contents

1.	The Problem and the Solution.....	1
2.	Waste Growth Projection.....	2
3.	Options Appraisal.....	2
4.	Treatment of residual waste and investment programme.....	3
5.	City-owned Electricity Company.....	4
6.	The collection system.....	5
7.	Processing of recyclates.....	6
8.	Separate Food Waste Collection.....	6
9.	The Procurement Plan.....	7
10.	Waste Prevention Plan.....	8
11.	Communication and messaging.....	9

1. Waste or Rubbish

The basis for the Waste Strategy 2017-2043 and its implementation should be a clear distinction between Waste, which includes all the items no longer wanted that are given to the council, and Rubbish or mixed refuse. These are entirely different terms, and should not be confused. If a waste is clean and separate, then it can potentially be reused, recycled or composted. Whole industries exist to buy, process and obtain value from separated wastes, creating income and jobs. However, if it is mixed and co-mingled, then it is useless rubbish and has to be disposed of, at great and continuing cost to the council.

2. The Problem and the Solution

The problem for Birmingham City Council is that it is operating at the bottom of the Waste Hierarchy of reduce, reuse, recycle, which is also the Value Hierarchy. Items that have some value are currently being rendered useless by mixing and burning or burying which incurs cost. They are converted to pollution, both solid and gaseous.

Only 23% of the waste collected is actually recycled, leaving 77% useless and to be disposed of. This means over 300,000 tonnes a year collected from households for disposal¹. Analysis of this "residual" waste has shown that more

¹ 410,736 households times 740 kgs per household DEFRA *Local Authority Collected Waste 2015/16*

than 80% by weight is potentially recyclable or compostable². As a result, Birmingham has the lowest recycling rate in the West Midlands and one of the lowest in the country, with the amount of residual waste per household at three quarters of a tonne every year, which is abnormally high. The scope to reduce it is correspondingly high.

It is clear that the current system is financially unsustainable. The ongoing industrial conflict with the collection teams, who are being asked to accept wage cuts, suggests that the council cannot afford to continue with it. The 25-year contract with Veolia was designed to extract money from the city and its people, not to extract value from the waste. The end of the contract, in 2019 gives a great opportunity to transform the wasteful system, and not to have 'more of the same'. We are looking for consistent planning for a rapid transition away from burning waste to reduction, re-use and recycling, comparable with the best performing waste authorities.

The design of the waste collection system determines the waste stream, crucially by the degree of separation, or lack of separation. Authorities that have high recycling rates have very specific collection systems to keep wastes separate, Birmingham can imitate them to get the same result, recyclable waste. This transformation is what Friends of the Earth is looking to see in a new waste strategy.

3. Waste Growth Projection

An increase in total waste arising has consistently failed to manifest in the past and projecting more waste is not a reliable basis for investment decisions. Waste is by definition something that people do not want in the first place, so they will find ways to avoid it. Unsurprisingly the overall trend is downwards, in fact the weight of household waste has fallen by 40% since 2000 in England³, with less per household being collected in the UK in 2015 than 2010⁴. Commercial companies will seek to reduce their waste, since it is a cost to them. The internet continues to increase resource efficiency particularly reducing the amount of waste paper. The increase in the city's population in recent years was due to trends like European migration and the expansion of higher education which are unlikely to be continued into the future. Therefore we should expect the tonnage of waste generated in the city to decline 2017-2040, as it has in past decades.

4. Options Appraisal

The options appraisal for a preferred technology does not appear to have included anaerobic digestion. This was a strange omission, given that half of residual waste from households in Birmingham consists of food waste. Many West Midlands authorities are already using AD to process food waste and there

2 2015/2016 figures Birmingham recycling rate was 316 out of 326 waste authorities in England

3 *Local Authority Collected Waste 2015-2016* DEFRA Table 3b

4 *Digest of Waste and Resource Statistics - 2017 Edition*, DEFRA

are companies which the council could partner with so as to benefit from this technology.

The options appraisal seems to have considered incineration and material recycling as being separate. In fact they would be in competition for the same waste, since the non-organic items in "residual" waste are largely the recyclable paper, plastic etc. The Materials Recycling facility (MRF) that is to be appraised may be the cheaper and more sustainable way to deal with these, allowing a rapid phase out of disposal by burning.

5. Treatment of residual waste and investment programme

We completely support Birmingham City Council's decision not to build a new incinerator at Tyseley. Investment should go into recovering value from waste, not destroying the value by burning it to ashes.

There is a national, and indeed international, overcapacity for waste incineration⁵ so the future demand and the gate fees that can be charged are highly uncertain and likely to decline. According to WRAP, gate fees at such plants are consistently higher than at the plants for alternative waste treatments such as AD and MRF. This difference reflects the inherent inefficiency of such plants, hence it will not change. The Tyseley plant is ageing and becoming more expensive, not less so.

The existing plant was designed in the 1980s and built in the early 1990s. The spare parts, labour skills and intellectual property rights that are essential to its maintenance will be increasingly difficult to obtain. As a result, the incinerator is vulnerable to major maintenance expenses. There is an ongoing corrosion problem due to the production of burning acids of sulphur, fluoride and nitrogen which affect the reactor, pipes and generator. To keep on rectifying this will cost millions. There has been, and will be, a lot of downtime for repairs, as was the case in 2016, when electricity output for the year halved⁶.

The combustible fraction of residual waste is declining rapidly and any future success with recycling will divert the combustible elements, paper, card and plastic, from the waste. Food waste is on a downward trajectory - avoidable food waste was down 17% in 2015 compared to 2007 according to WRAP⁷ - and the separate food waste collection that we propose would accelerate this decline. The calorific value of the waste, which is already low, would therefore decline further, reducing the already low efficiency of the process. It may not continue to qualify as an "energy from waste" plant.

The government is saying it favours a deposit scheme on drinks containers of plastic and aluminium, as in Scotland, to drive up recycling⁸. The Chancellor is

⁵ *Residual Waste Infrastructure Review' (12th Issue)*, Eunomia, August 2017

⁶ Veolia report to Environment Agency, obtained by freedom of information.

⁷ *Household Food Waste in the UK*, 2015 WRAP

⁸ *Call for evidence on voluntary and economic incentives to reduce littering of drinks etc*, DEFRA

considering a tax on single use plastic packaging to prevent litter. There is a working party looking at how disposable cups can be made recyclable or compostable. Some or all of these initiatives could rapidly reduce the combustible element in the waste stream in the next few years.

There is already an overcapacity of waste incineration nationally, so gate fees that can be charged are likely to fall, due to competition, hence income at Tyseley will fall. Rival plants using AD or MRF will compete for waste.

Closing the plant will also deal with the problem of ash. This incinerator bottom ash is not a single material, so it cannot be recycled into new products. It can be used only as a low grade filler in competition with rubble. The existing ash plant is scheduled to be demolished for HS2 and there are considerable costs and time delays in relocating it. Toxic fly ash is a hazardous waste that remains expensive to dispose of.

Closing the plant will be a massive contribution to Clean Air in Birmingham. In 2019, the council will become the owner of the biggest source of air pollution in the city. Burning mixed refuse produces nitrogen oxides and fine particulates, which add to those from vehicle exhausts. From our calculation closing the plant would be the equivalent to taking 1,300 diesel cars off the road. Nitrogen oxide is 300 times as potent as carbon dioxide as a greenhouse gas.

The process is very high carbon as an energy source, about twice as carbon intensive as a coal fired power station for every unit of electricity, according to our calculations, not surprisingly since it burns largely plastic and at low efficiency. The Tyseley plant is the largest source of CO₂ in the city, emitting more than 300,000 tonnes a year⁹, and is a site of uncontrolled methane from rotting rubbish. Closing it will make it much more likely that the city's carbon footprint will reduce in line with its target.

The UK government has the target of closing all coal-fired power stations by 2025 (i.e. in 7 years), rendering the plant seriously vulnerable in a low carbon economy. No public financing for waste burning can be expected in the future, it being absent from the UK government's Clean Growth Strategy 2017. On the contrary, a system of carbon pricing is to be introduced¹⁰.

Closing the plant will benefit East Birmingham as a residential area. The plant emits smells from rotting rubbish and is visually dominant.

Closure will release the council from the need for an expensive weekly collection of mixed refuse from every household. Most authorities collect fortnightly, some three-weekly, even just monthly, where food waste has been diverted¹¹.

It will allow the currently low recycling rate to climb, so that most waste will be recovered, have some value to defray cost of treatment and meet recycling

9 *What's In Your Backyard?* Environment Agency map air pollution

10 *The Clean Growth Strategy; Leading the way to a low carbon future*, BEIS 2017

11 *Falkirk Zero Waste Strategy*

targets. Phasing out and closing down the burner would mean that the materials consumed within it (paper, textiles, glass, paper, etc.) would be recovered. Even assuming the lowest value of these secondary materials, we calculate their value at a minimum of £5-6 million annually.

The plant should be regarded as a residual technology, having only a very limited future. The regulatory and tax environment will only become more unfavourable: for example, there is the real possibility of an incineration tax. The strategy should be to supersede it on the Tyseley site by cool processes, such as composting, digestion, sorting and processing of waste.

6. City-owned Electricity Company

A new Birmingham Energy Company would not benefit from the Tyseley plant, because it will require customers to switch and offer the cheapest deal hence to source the cheapest energy nationally, in competition with all other sources of electricity and heat. Tyseley is not a power station and does not have access to a real fuel. It would be a very dubious plan to commit council tax payers to subsidise the plant, so that electricity consumers, most of whom may not live in Birmingham, can have cheaper electricity.

The plant is expensive and not sustainable as a source of electricity for a number of reasons. The efficiency is low, when the start-up oil or gas and the power used in running the plant is taken into account, and very low if the collection vehicles bringing in the rubbish are included. Its "fuel" has changed greatly from when it was built; for example paper has declined and plastic been diverted. The result is a falling proportion of items that will burn, with a rising proportion of wet waste and incombustibles. The income from the electricity will fall with the imminent end of the Non-Fossil Fuel Obligation (NFFO) payments. The Renewable Heat Incentive is not payable to heat from burning plastic. The idea of capturing and piping waste heat to the city centre to compete there with gas for space heating was shown some years ago to be uneconomic (£1 million a mile)¹². Future income from electricity would be needed to pay for running costs and cannot be given to the energy company.

We do not recommend wind power at Tyseley, which is one of the least windy places in Britain, being far from the coast, in the centre of a built up area, therefore surrounded by trees and buildings. Birmingham Airport routinely objects to moving objects in its radar range. However, solar energy and anaerobic digestion could both be appropriate investments for the Tyseley site, if energy is wanted. We have proposed digestion of food waste as biogas to power a bus, as has been successfully trialled in Bristol¹³.

If the council wishes to combat fuel poverty, then investing in the energy efficiency of its own council houses would be the most effective way to do it. This is a warm homes issue, not a waste issue.

¹² Tyseley Energy from Waste Plant: Feasibility into the future possibilities for the use of waste heat - Urban Design, June 2009

¹³ Bristol Bio-bus <http://www.geneco.uk.com/Bio-Bus>

7. The collection system

To transition from waste burning to waste reclamation will require a changed collection system which delivers more separated wastes for recycling. This means learning from neighbouring authorities who already do this.

We welcome the offer of the Unite trade union to share ideas about how more income can be derived from the recycling collection.

The main point of procurement should be to allow for the collection system to change, not to keep it as it has been. People need an offer of weekly collection for the organic waste fraction which may rot, smell etc, but dry wastes can then be collected much less frequently, with savings to the council.

Paper is bought at the paper mill in Birmingham and we understand it covers its cost of collection. The internet is replacing paper, producing an on-going shortage of this waste, which is going to remain an attractive source of income. Smurfit Kappa should be consulted on what collection system would produce the best tonnage and composition of paper and card. Residents complain that the paper pod is too small, but have pointed to a no-cost solution to this: we could use the pod for cans and bottles, leaving the body of the bin available for more paper and card.

Clothing and textiles can be sold and should not be burned. Currently, many householders dump them in the street, while charity clothing banks overflow, incurring cost to clear away. Some authorities collect clothing in their doorstep recycling, for example in a coloured bag¹⁴. Charities such as Islamic Relief and Oxfam have large scale operations to use unwanted clothing and the council should consult and partner with them to produce a social benefit.

Dry waste could be put in black bags to diversify the collection, if wet waste is put in a food waste bin.

8. Processing of recyclables

The idea of a council-owned Materials Recycling Facility is welcome. It would immediately divert mixed recyclables from the incinerator. Some commercial waste companies use MRF to sort almost **all** the waste they receive, so this technology could lead to a rapid redundancy of the Tyseley incinerator.

The feasibility study for an MRF should be brought forward as a high priority because it may show a superior business case to investment in the incinerator. They will be in competition with each other for waste, one will produce product that can be sold, while the other will not. The MRF should be planned as the successor to the existing plant.

Paper and card is bulky and it can be taken directly to the paper mill if collected separately as at present, so we would see no reason to mix it in the bin, then separate out again in the MRF, which can never be complete in its separation process. The better the separation, the higher the price paid for paper waste.

14 Conwy www.conwy.gov.uk *which bin should I use?*

9. Separate Food Waste Collection

According to the analysis of its composition, 48% of residual waste collected by Birmingham City Council is food waste. This became visible to all during the recent bin strike. The analysis by WRAP shows that around half of food waste is unavoidable and inedible, and that this proportion is rising¹⁵. Therefore, persuading people not to over-purchase and to use left overs is not enough to deal with the main issue which is contamination. Any food waste contaminates the other waste and makes it unusable. Where it is kept separate, then the remaining dry waste may be diverted for recycling by the household **as well as** the food waste being recycled. Authorities with high recycling rates twice that of Birmingham almost all have separate food waste collection, for example this is the policy of the Welsh government and it has been implemented throughout Wales, leading to a recycling rate of 60% in 2015/16¹⁶. It is best practice in half of local authorities.

Evidence shows that when people see their food waste separated, they reduce their portion sizes and buy less food, so wasting less. It is therefore an effective way of reducing the amount of food in residual waste. This is one of the main reasons why residents are asked by Sandwell District Council to participate in their food waste collection system: if you do it then you are inclined to buy less, waste less, and save money as a result¹⁷.

Organic waste smells, because it is already rotting. The process is a natural one, anaerobic digestion, but it needs to be managed. Wolverhampton and Sandwell take their food waste to anaerobic digestion plants, which use it to make two useful products, gas and fertiliser. The alternative is in-vessel composting; Coventry uses this system allowing food waste and garden waste to be collected in the same bins¹⁸. AD will return carbon and nitrogen as fertiliser to the soil in a state to be used by growing plants, not as unwanted releases to the air.

The council already pays for a weekly collection of food waste from every home, so we are calling for this to be in separate containers, not additional collection rounds. It would not require an additional set of vehicles, or workers, since the neighbouring authorities attach a pod to the collection vehicle (most of which are leased) and collect at the same time as the residual waste. The amount of waste is not changed by separation, of course; same tonnage, same streets, same frequency.

In Birmingham, separate food waste collection could be accommodated in the existing bins by repurposing the residual waste bin for food waste, then allowing a black bag for dry rubbish (no food). Dry residual waste might be sorted at an

15 WRAP Food Waste <http://www.wrap.org.uk/content/household-food-waste-uk-2015-0>

16 *Towards Zero Waste Wales* the Strategy for Wales

17 *Why bother with food recycling?*
www.sandwell.gov.uk/info/200160/bins_and_recycling/1971/food_waste

18 Coventry brown bin <http://recyclingclub.coventry.gov.uk/my-garden-waste-bin-1>

MRF for recycling. We understand this happens currently to Birmingham's street litter bins.

Birmingham Friends of the Earth calls for separate food waste collection, if necessary as a trial in one part of the city, for example Castle Vale, close to Severn Trent's AD plant at Coleshill. An extension to Sandwell's food waste collection might be used in the west of the city.

10. The Procurement Plan

We welcome the approach of using separate contracts for different parts of the waste system. This now requires that they should avoid conflict and competition, not chasing the same elements of the waste. Contracts should reward quality, efficiency and customer service, not a tonnage of waste. Contractors cannot all maximise their tonnage.

The procurement plan for the post-2018 services should have the purpose of effecting a transition from mass burning to maximising the reclamation of the city's waste. Each contract should have this goal spelled out and its provisions should consistently work to divert material to composting, digestion, recycling and re-use.

The Waste Disposal contract should avoid giving the operator of the Tyseley plant control over the city's waste stream, as for the last 25 years. It must not work against the Waste Strategy's aim of maximising recycling and the recovery of value. The aim should be to minimise and phase out residual waste, working to hasten the end of incineration for waste disposal. It is therefore crucial for the council not to have a contract with an operator that incentivises or requires any tonnage of waste to be burned. This implies a fixed price, whatever the tonnage, rather than price per tonne. It must not work against or contradict progress towards the recycling target.

The council should retain responsibility for repairing the plant, so it can decide at what point this is no longer worth doing. The council should not need to burn the maximum for 15 years so as to cover the cost of on-going repairs.

For the Household Recycling Centres, there should be objectives written into the contract to optimise vehicle flows around the site, to protect pedestrians and to minimise the movement of heavy goods vehicles on the streets. We welcome the chance for social enterprises to partner and recover re-usable items, also to train and employ local people. Most of the jobs in waste will lie in reuse and recycling.

A garden waste contract should not have target tonnages, and should not give an incentive to transport waste just to meet targets. Moving waste is not an aim. Rather, waste miles and vehicle movements should be minimised with composting happening within or on the edge of the city.

11. Waste Prevention Plan

The name "Recycling Plan" would be more clearly understood than Waste Prevention Plan. The public consultation exercise in 2016 approved the idea that Birmingham should transition to a high recycling authority with a target of 70%, therefore the Recycling Plan should declare this target and describe how it will be

achieved. This target is not merely “nice to have” but could become obligatory if national government is to achieve its targets for recycling.

The name Waste Prevention Plan does not convey what will actually be done with people’s waste. Generating waste is to some extent inevitable, and is dominated by national trends. An individual waste authority can only modestly act to prevent waste, yet it has a lot of power over the waste stream, by deciding how it collects waste. The aim should be that it will become easy, convenient and obvious just how householders can send the right waste to the right place.

We welcome the chance for local firms and social enterprises to bid for contracts, keeping money in the city. The process should allow for their creativity and suggestions, in an interactive dialogue over the contract life.

- **Household Recycling Centres**

These have 20 separated waste streams and we want that degree of separation to continue. Operators should be given the explicit aim of separating and recycling waste to the maximum, and of dealing with it within the site or within Birmingham and minimising transport movements. We would like to see other more local sites come forward where people can bring waste for bulking up, for example people without cars.

- **Reuse locations**

It is socially unjust to contract to burn what low income families may wish to buy, such as furniture, household goods, gardening equipment, white goods, clothing etc. The Re-users at Norris Way HRC where visitors donate unwanted items for sale is a success and we want this model to be replicated at all the other HRCs. There could be more locations, creating jobs at a neighbourhood level; any industrial estate might be used for such a project, an example being the Re-Useful Centre, a social enterprise in Leamington Spa

- **Bulky waste**

Large items are currently collected from households for a charge. They are all burned, as we understand it. However 60% were found to be saleable when CSV ran a collection some years ago. The key point is to ask householders to distinguish and donate what is usable and worth collecting from worthless junk. Otherwise, they should be separated when people bring them to the HRC site. There is a widespread problem of fly-tipping furniture, mattresses etc, which costs the council to clear. No contract for re-use should create an incentive to do this. It should be widely publicised how families on low incomes benefit from second hand items and the jobs which are created.

- **Carpets, Mattresses**

There are firms trying to recover the materials from old carpets and mattresses, so a chance to bid for them in the procurement will be desirable.

- **Street litter**

In many towns, the street bins have two compartments, for recyclables and other litter.

We believe that street litter in Birmingham is sorted for recycling by an MRF, which should continue in the new strategy. The composition is similar to household waste, which also mainly comprises packaging and food waste.

- **Garden Waste**

Garden waste is mainly air and water and it will break down naturally if left in gardens where it maintains fertility. Encouraging home composting and community composting e.g. at allotments is a very worthwhile prevention strategy.

We note that the Parks Department has a well-developed green waste composting system. Could this be the basis for composting all garden waste in the city?

12. Communication and messaging

The public of Birmingham now expects to see a clear a transition to recycling waste, not disposing of it, according to the Future Waste Strategy Survey 2015, and the public consultation on the draft Waste Strategy 2016. The council should communicate why this transition is happening and how it is planning to accomplish it.

Communication should also make clear what is expected of households and businesses, stating the benefits both to the person and the city that they live in.

To extoll the virtues of waste burning, calling it an energy solution or the answer to fuel poverty would compete with the recycling message, so should not be used in a Communication Strategy.

We do not like the Zero Heroes campaign. One should not have to be a hero to recycle in Birmingham – it should be very normal behaviour, given clear information and some incentive.

Many people have stopped trying, because they do not understand what is and what is not recyclable and consequently put everything into the residual black bin. In some towns, a label is stuck on the bin. A mobile phone app should be developed, to give residents up-to-date information about the waste service, such as that used by Conwy District¹⁹

Some authorities have videos on a website that show the journey of the waste to composting, recycling etc. so that people can have confidence that really it is utilised in an environmentally friendly manner.

Incentives to recycle have to be part of the strategy. We do not understand why the trial using nectar points was dropped, despite its success in nudging people into using the recycling bin. Meanwhile, the 5p carrier bag charge has shown the spectacular effect of a small incentive on people's behaviour.

19 The Conwy App

Many people respond to a good cause. Brumcan used to operate "Recycling for Charity", in which small donation from sales of the waste was donated. Alternatively the incentive might be at ward level, to buy books for the local library or primary school.