

Policy Position Statement

Energy from Waste

CPRE published a Policy Position Statement on Waste in January 2006¹. This remains its overarching policy. However much has happened in the waste field since then. Waste management is not a current focus of CPRE policy development at national level but branches are increasingly dealing with waste plans² and planning applications, especially for incinerators. The Board therefore decided to do a partial review, concentrating on Energy from Waste (EfW). It brings together the recent experience of branches and National Office, and will guide how CPRE approaches national policy³, local plans and proposals for EfW in the future.

What is EfW?

European Directives on Waste⁴ commit member states to applying a waste hierarchy (annex 1) which was incorporated into Planning Policy Statement 10⁵. The hierarchy gives top priority to waste prevention, followed by preparing for re-use, then recycling, other types of recovery (including energy recovery), and last of all disposal (eg landfill).

There are many different technologies for recovering energy from waste⁶. The most well known is direct incineration with some higher technology versions - gasification, pyrolysis, plasma gasification. The heat extracted can be used to generate electricity, heat buildings, feed industrial processes or some combination. There is growing use of Materials Recycling (or Recovery) Facilities (MRF) to extract more recyclable components and produce a residual refuse derived fuel for burning. Food and other bio-degradable waste can be used for anaerobic digestion (AD) which produces methane, a source of energy, and a residue which potentially can be used as a fertiliser/soil improver, subject to strict controls relating to plant and animal health.

There are difficulties in writing policy guidance about EfW alone. EfW plants are an element in a chain of waste management from creation through to ultimate residual disposal, but the exact mix of collection, recycling, treatment and disposal will depend on local circumstances. It must also be remembered that EfW is at the intersection of Waste Policy and Energy Policy - both having major environmental impacts. EfW (encompassing both landfill gas and incinerators) is currently the largest contributor to achieving the nation's renewable energy targets. Landfill gas is

¹ <http://www.cpre.org.uk/resources/energy-and-waste/climate-change-and-energy/item/1991-fieldwork-spring-2011>

² we use the term "waste plans" to cover both the waste disposal authority and the planning authority

³ note that waste is not covered in the National Planning Policy Framework. National waste planning policy will be published alongside the National Waste Management Plan for England which is in preparation, although local authorities preparing waste plans are expected to have regard to policies in the Framework.

⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008L0098:EN:NOT>

⁵ <http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/planningpolicystatements/pps10/>

⁶ for quick guide, see Wikipedia - <http://en.wikipedia.org/wiki/Waste-to-energy> for fuller discussion, see Section 6 of <http://legacy.london.gov.uk/mayor/environment/waste/docs/greenhousegas/greenhousegasbalances.pdf>. For an example of an emerging technology see <http://www.telegraph.co.uk/finance/newsbysector/transport/8116000/Sita-to-tur-into-diesel-to-power-vehicles.html> - article

declining as landfill sites age and as more recycling and higher costs reduce the amount of waste going to landfill, so there is pressure from Energy Policy for other forms of EfW to play an increasing part.

Another challenge in dealing with EfW issues is the scale and complexity of the business. Many waste management companies are international conglomerates which operate regionally, nationally and internationally. Most EfW plants come forward as a result of multi-local authority waste plans and require planning permission from the County or Unitary Authority. Some EfW plants are large enough to be considered power stations (over 50MW)⁷ and if so, they are planning matters for the Infrastructure Planning Commission with local government as a consultee. Emissions are controlled through an Environmental Permit issued by the Environment Agency.

Why is EfW important to CPRE?

EfW is important to CPRE because it has the ability to pull in contrary directions on two of CPRE's core objectives from its 2026 Vision for the Countryside:

- the infrastructure⁸ needed for EfW and the operation of its facilities (noise, traffic etc) can be very damaging to the **beauty and tranquillity** of the countryside. The country will need a lot more infrastructure for waste management over the coming years and much of it may incorporate EfW;
- managing waste better can contribute in many ways towards **reducing greenhouse gas emissions**. EfW, by reducing landfill and/or generating renewable energy/heat, will play a part but it is not yet clear how great its contribution could be. Its positive impact will be offset if waste is transported long distances or the heat it generates cannot be used efficiently on site. The net effect on greenhouse gas emissions may be slight, but EfW will also be valued for its contribution towards energy security. It is a local, long term, source of renewable energy.

A sequential test

The arguments surrounding the impacts of different waste management solutions on greenhouse gas emissions are extremely complex. They require a detailed understanding of the technologies involved and their financing; the field is evolving rapidly; and conclusions can vary widely according to the area of the country considered. Although all waste management technologies are heavily transport-dependent with obvious effects for the tranquillity of the countryside, waste management is only one of the ways to achieve the CPRE's objective that the English countryside should make an important contribution towards reducing greenhouse gas emissions.

CPRE will therefore examine first the impact of EfW infrastructure on the beauty and tranquillity of the countryside and only engage in debate about greenhouse gas emissions where the impact on beauty and tranquillity is judged to be unacceptable.

The waste hierarchy

CPRE supports the waste hierarchy and the judgement implicit within it that recovering energy from waste is an appropriate way to reduce the impact of waste

⁷ eg. Rookery South <http://infrastructure.independent.gov.uk/projects/eastern/rookery-south-energy-from-waste-generating-station/>

⁸ by 'infrastructure' we mean the entirety of the built development needed both on and off site (roads, power transmission etc).

management on CPRE's objectives. CPRE does not seek to remove EfW from the waste hierarchy.

It is right that waste is increasingly being seen as a potential resource, not simply something to be thrown away as cheaply as possible. This requires planning authorities and local communities to change their way of thinking. EfW plants should be seen as factories. As market conditions change they will import their feedstock (waste) from wherever in the world it can be bought cheapest and export their products (fuel, energy and residual waste) to wherever they command the highest price or lowest disposal cost.

This note deals mainly with municipal waste. Most of the EfW plants which would impact on CPRE's interests are driven by the plans of waste disposal authorities (County or Unitary) for dealing with municipal waste, often working in regional consortia. In future, the disposal of commercial and industrial waste may become a bigger driver. CPRE will wish to ensure that local authorities integrate, as far as possible, the management of all waste streams.

It is essential that CPRE branches engage with the waste plans of local authorities early enough to spot damaging developments and challenge the authorities to consider alternatives and justify choices. In all waste plans and planning applications, CPRE will wish to satisfy itself that the waste stream has been minimised by prevention, reuse and recycling/composting, ensuring that EfW uses only residual waste. What evidence has the authority used to set stretching targets for constraining waste growth while maximising recycling and composting?

The Scottish Government has set a national target of 70% recycling for all waste by 2025⁹. Energy from waste "should only be used for resource streams which cannot practicably offer greater environmental and economic benefits through reuse or recycling". The Welsh Assembly has also committed to 70% recycling by 2025¹⁰ and notes that "there will be far less need for residual waste treatment facilities such as 'energy from waste' plants with the number and/or capacity required progressively reducing from 2025 to 2050". In England, the Government is committed only to meeting the waste framework directive target of 50% for household waste by 2020, although some commentators believe this will be exceeded. It goes on to acknowledge that "through effective prevention, re-use and recycling, residual waste will eventually become a finite and diminishing resource; but we need to deal with this waste effectively for the foreseeable future"¹¹.

A local authority's performance against the waste hierarchy is a moving picture. CPRE branches will wish to press authorities to avoid the danger of providing more capacity in the lower levels of the hierarchy, such as EfW, which then discourage further progress in the higher levels, such as recycling.

Large scale EfW plants require long term contracts. As progress is made in the higher levels of the hierarchy, there is a risk that operators will need to ship in waste from a larger and larger area with implications for amenity and greenhouse gas emissions. CPRE expects authorities to test waste plans and proposals for their sensitivity to such changes and adopt a strategy which can flex to the changing demands of the market

⁹ <http://www.scotland.gov.uk/Publications/2010/06/08092645/11>

¹⁰ http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/publication/towardszero/?lang=en

¹¹ <http://www.defra.gov.uk/publications/files/pb13540-waste-policy-review110614.pdf>

and progress made in prevention and recycling. In particular, applications for EfW plants should include proposals for how managers will respond to falling demand from the presumed catchment area and contracts should be written with review clauses which can respond to changing circumstances.

EfW and its position within waste management is a complex, highly technical issue. Economic drivers push developers towards large scale projects. If suitable industrial sites can be found, this may reduce conflict with CPRE's interests; if not, CPRE may wish to press for a number of smaller scale projects.

Health impacts

CPRE notes the conclusion of the Health Protection Agency in 2009 that:

“While it is not possible to rule out adverse health effects from modern, well regulated municipal waste incinerators with complete certainty, any potential damage to the health of those living close-by is likely to be very small, if detectable”¹².

Although other studies, both in the UK and in Europe, come to a different conclusion¹³, CPRE is not in a position to challenge it.

Impact on beauty and tranquillity

CPRE will want to be satisfied that the location, scale, design and operation of EfW plants will not have an unacceptable impact on the beauty and tranquillity of the countryside. The most suitable places for EfW facilities will generally be within existing industrial areas. Secondary effects, especially the impact of increased traffic, are likely to be critical¹⁴. CPRE will often wish to seek a Transport Impact Assessment of EfW plants, leading to conditions on planning permissions to reduce traffic related impacts - such as specifying routes (to avoid a school, for example); the washing down and covering of wagons; the provision of an off-road cycle route near the site.

CPRE objectives may be best served if waste is processed as close to its source as possible and different processes are co-located (sorting, treatment for EfW, consumption of energy). Small scale facilities located where they will minimise transport impacts may have an acceptable impact on the beauty and tranquillity of the countryside. The waste industry will always be attracted by economies of scale and, depending on the location of the site(s) and transport implications, a large scale, fully integrated facility may have less impact on CPRE interests than a large number of smaller sites. It is a key role of planning authorities to bring in to the assessment externalities such as the amenity impact of transport.

In addition to a site by site assessment, measurement against CPRE's objectives could result in a different strategic approach to the role of EfW in waste management in different parts of the country. For example...

In **Surrey** CPRE (with others) has concluded that there are neither acceptable countryside locations, nor urban brownfield locations, for a mass burn incinerator.

¹² <http://www.hpa.org.uk/Publications/Radiation/DocumentsOfTheHPA/RCE13TheImpactonHealthofEmissionstoAirfromRCE13/>

¹³ in the UK <http://www.ecomed.org.uk/publications/reports/the-health-effects-of-waste-incinerators> and reports quoted in chapter 5.7 of *A Changing Climate for Energy from Waste?* 2006 report for foe by Eunomia Research & Consulting available at: <http://www.foe.co.uk/resource/index.shtml?v=reports>

¹⁴ it should be noted that transport impacts will be critical in the consideration of all forms of recovery/recycling as well as EfW

The County has responded with a very aggressive recycling target of 70% and a gasification plus anaerobic digestion plant in a semi-urban location.

In **Cheshire** the character and location of the county's industries has offered a number of opportunities for large scale EfW combined with CHP on or immediately adjacent to industrial land¹⁵. Of greater concern to CPRE in Cheshire is the impact on the countryside of a proliferation of anaerobic digestion plants serving its livestock farms.

In **Devon & Cornwall** the Secretary of state has approved a large EfW Plant at St Dennis against the wishes of Cornwall Council. In Devon the selection of another company as the "Preferred Bidder" for an EfW Plant in Devonport has resulted in a situation where there are three simultaneous planning applications within 12 miles of one another. The peninsular nature of the South West ensures that these three transport-intensive facilities will have a significant effect on the beauty and tranquillity of the countryside.

In **Staffordshire** experience of the Four Ashes Incinerator underlines the point about predictions. Walsall Council predicted it would never reach above 45% recycling over the 25 years of the plant so committed to provide waste to the plant. Due to a new recycling regime it has within a couple of years exceeded that level.

There is considerable uncertainty about how the waste market and waste processing technologies will develop over the next 20-30 years. It may well be that local opposition and difficulties in raising finance will result in few of the large incinerators now planned being built. The current package of financial incentives for renewable energy, which may include a PFI, favours incinerators in industrial locations which are likely to conflict less with CPRE's interests.

In the medium term, AD may pose a greater threat to the beauty and tranquillity of the countryside. Small scale AD facilities for local food and/or agricultural waste are unlikely to be damaging enough to attract an objection from CPRE provided they are well sited. Large scale AD plants require a secure, pure stream of biomass for 10-15 years. They are unlikely to be able to rely on food and agricultural waste alone. This may be a driver for growing biomass crops at a large scale and favour countryside locations for the plants. CPRE will wish to be alert to this possibility and ensure that local authorities are well prepared to deal with the planning consequences.

Impact on greenhouse gas emissions

CPRE has neither the expertise nor the remit to recommend the "best" EfW technology for reducing greenhouse gas emissions in particular circumstances.

We note that in a study of 24 scenarios for the Greater London Authority¹⁶ six of the top ten technologies judged by cost-effectiveness in reducing greenhouse gas emissions were based on intensive recovery of recyclables in an advanced MRF followed by anaerobic digestion (MBT-AD) and that the best performing incineration scenario came in 19th. We do not suggest from this that MBT-AD will be the best solution everywhere. Each area will set political as well as technical objectives for

¹⁵ <http://www.covantaenergy.co.uk/covanta-uk-home/development-projects/cheshire.aspx>
<http://www.ineoschlor.com/efw/energyfromwaste.shtml>

<http://www.peel.co.uk/news/partnershipformedtodevelopecopark> http://www.brunnermond.com/news_view.aspx?id=57
¹⁶ <http://legacy.london.gov.uk/mayor/environment/waste/docs/greenhousegas/greenhousegasbalances.pdf>

managing waste. In this study for London, a given objective was to manage as much waste within the city as possible.

An essential part of any proposal for EfW is the proposer's estimate of the energy generated and, by comparison with the amount of coal, gas or oil that would be needed to produce the same output, the CO₂ emissions benefit. There is currently no widely accepted method for making these calculations and CPRE believes the estimates put forward may overestimate the CO₂ reduction benefits.

The Greater London Authority study and CPRE's doubts about the adequacy of energy and CO₂ benefit calculations study argues powerfully against a dash for incineration on grounds of reducing greenhouse gas emissions. CPRE does not have the expertise to either make these calculations or to assess those of EfW proposers. However we will wish to be satisfied that EfW plans and proposals come forward in the context of an independent assessment of greenhouse gas benefits, making all calculations and assumptions explicit and giving all technologies a level playing field on which to compete. In addition to the impact of the core waste processes, it is essential that this analysis takes into account the transport impacts of EfW plans and proposals on greenhouse gas emissions.

Conclusions

CPRE supports the use of waste to generate heat and power after everything has been done to minimise, reuse, recycle and compost waste.

In order to reduce the impact of EfW on the beauty and tranquillity of the countryside and to maximise the reduction of greenhouse gas emissions, **waste disposal authorities** should:

- test options against a variety of scenarios in technology development and market conditions, and build flexibility into plans and contracts;
- consider fully the impacts of transport when deciding the location and scale of facilities;
- work in partnership with the private sector so that municipal and commercial & industrial waste is treated, wherever practical, through the same facilities.

Local planning authorities should:

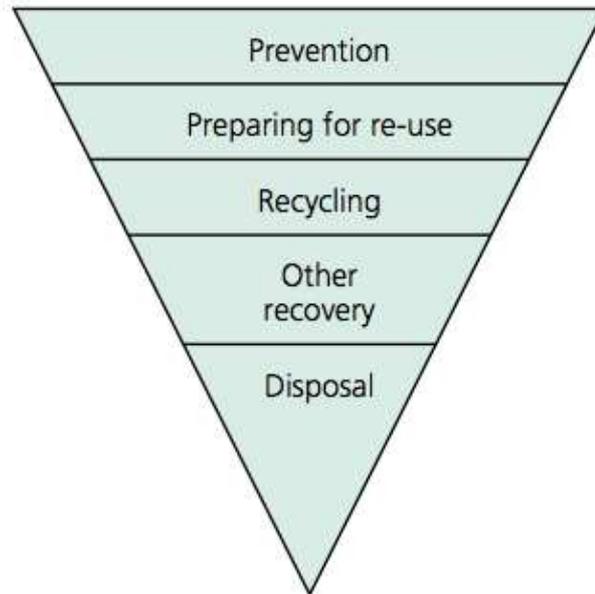
- consider a wide range of scenarios when assessing the environmental impacts of a proposed facility, including the consequences of changes to the market which would make it economic to draw waste inputs from a much wider area;
- ensure as far as possible that the treatment of municipal and commercial & industrial waste is integrated.

CPRE should:

- seek to ensure that the principles set out in this guidance note are incorporated into local planning policies concerning energy from waste facilities;
- collaborate, sharing experience and best practice between branches, regions and national office as widely as possible.

Annex 1 - The Waste Hierarchy

The waste hierarchy



- the most effective environmental solution is often to reduce the generation of waste, including the re-use of products – *prevention*¹⁶
- products that have become waste can be checked, cleaned or repaired so that they can be re-used – *preparing for re-use*
- waste materials can be reprocessed into products, materials, or substances – *recycling*
- waste can serve a useful purpose by replacing other materials that would otherwise have been used – *other recovery*
- the least desirable solution where none of the above options is appropriate – *disposal*.

Annex 2 - Pressure points

These are the main opportunities for a CPRE Region/Branch to influence EfW:

Waste plan (single or multi-authority)

- integrates treatment of municipal and commercial & industrial waste?
- sets stretching re-use and recycling targets?
- considers all technologies in an even handed way?
- tests sensitivity of options to changing market conditions?
- proposes flexible contracts to reduce risks associated with changing market conditions?
- makes all assumptions and calculations explicit?
- includes independent review of assumptions and calculations?
- brings all externalities into assessment, especially impacts on beauty and tranquillity of countryside?

Planning applications for EfW

- fully considers all impacts on beauty and tranquillity of countryside?
- considers use of conditions/S106 to reduce impacts?
- makes all assumptions and calculations explicit?
- includes independent review of assumptions and calculations?

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