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Foreword

The waste and resource management sector is a vibrant industry with a great future. We directly employ over 140,000 people in all parts of the country, collect and manage waste from homes, shops, businesses, schools and hospitals all across the country, and manage it in a way which keeps people and our environment safe. When I first joined the industry the focus was on disposing of waste through landfill, but today that picture is transformed, as the companies which make up the industry invest in a range of increasingly sophisticated treatment processes meaning that what you throw away as waste becomes someone else's valuable raw material. That's good for the environment and good for the British economy.

However, we want to do even more. With the right policy framework, we stand ready to invest several £billion in a further upgrade of Britain's waste management infrastructure. Doing this will ensure that our national and EU waste targets are met and help build a truly sustainable economy.

This brief has been put together by ESA, the voice of the waste and resource management industry, to explain how the industry operates and delivers sustainability. I hope you find it of interest.



Ian Goodfellow
Managing Director,
Shanks UK
Chairman, ESA

Who We Are

Britain's waste and resource management industry provides services which are essential to modern life. Employing over 142,000 people and with an annual turnover of £11bn, the companies that make up the sector collect the waste produced by households and businesses across the UK, treat the waste responsibly, and turn a large percentage of that waste into new resources and energy for the nation.

In recent years the industry has transformed itself. Ten years ago, over three-quarters of Britain's waste went to landfill (compared to well under 50% today) and waste management was chiefly focused on the logistics of collection and transport. While these still matter, the industry has developed a range of technologies to treat waste and extract value from it. Innovation is a constant feature of modern waste management. The industry is also at the forefront of debates about waste prevention and recycling.

ESA: THE VOICE OF THE INDUSTRY

The Environmental Services Association (ESA) was founded as the National Association of Waste Disposal Contractors (NAWDC) in 1968. Today ESA's Members represent 85% of the sector, including all the major companies, and ESA speaks on their behalf in Britain and in the EU. ESA:

- Lobbies constructively for a policy framework which enables ESA Members to operate profitably and responsibly for the benefit of the UK environment.
- Prepares sector health and safety guidance.
- Works to raise operational standards across the industry.

THE SECTOR AT A GLANCE

- Total turnover: £11bn.
- Direct Employment: 142,000 people.
- Municipal waste handled each year: over 26 million tonnes.
- Energy generated (from waste combustion and landfill gas) each year: approximately 6,500 GWh, 1.5% of the UK's total electricity supply and over 25% of our renewable electricity. Greenhouse gas emissions down by 70% since 1990.
- The top seven companies account for over 50% of turnover. Many hundreds of SMEs provide either localised or more specialised services.



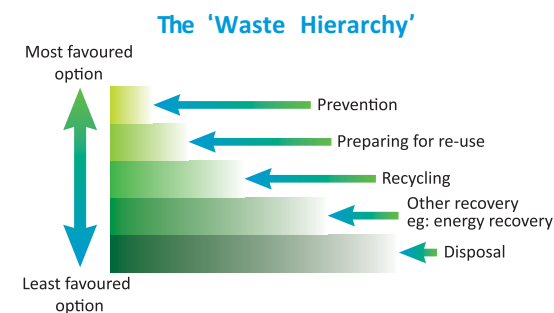
What We Do

We provide an essential public service

The UK produces 75 million tonnes of household (municipal), commercial and industrial waste a year, roughly 200,000 tonnes per day. Collecting this waste is one of the UK's essential public services, like energy supply and the operation of our transport networks. As with energy and transport, any significant interruption to this service is of huge concern to the public and threatens our quality of life. ESA research has shown that two out of three people believe that waste collection is the most important service provided through local authorities.

We enable businesses and public authorities to stay compliant with EU law

UK waste policy is largely shaped by the EU Waste Framework Directive and in particular the 'waste hierarchy'. According to the hierarchy, landfill should be the last resort for dealing with waste and preventing it arising in the first place is the ideal. Reusing, recycling or recovering energy from waste make up the middle of the hierarchy.



In addition to the broad principles of the hierarchy, EU law covers all aspects of waste collection and treatment in great detail. The Landfill Directive and the Waste Framework Directive also set targets such as:

- Recycling or preparing for reuse 50% of household waste by 2020.
- Reusing, recycling or recovering 70% of non-hazardous construction & demolition waste by 2020.
- Reducing the amount of biodegradable municipal waste (BMW) going to landfill to no more than 35% of 1995 levels by 2020.

Through the combined efforts of householders, local government and ESA's Members, municipal recycling rates have risen from 12% in 2001 to over 40% in 2011. However, we need to do even better – 24m tonnes of all waste is still landfilled each year, including almost half of all municipal waste.

Failure to comply with EU and other waste law obligations could have serious consequences:

- **For the UK Government (and where relevant the devolved administrations)** failure could mean infraction proceedings against the UK, potentially followed by fines of up to £500,000 per day.
- **For local authorities**, the Localism Bill provides for fines incurred by the UK Government because of a local authorities' failure to manage their waste to comply with the EU targets, would be passed on indirectly to residents, as local authorities would have to recoup the fines through Council Tax.
- **For companies**, failure to comply with their legal duty of care can lead to a penalty of up to £5,000 if convicted in the Magistrates Court or an unlimited fine if convicted in the Crown Court.

The waste management industry is committed to helping its customers avoid these risks, through the investment in treatment infrastructure it makes and the services it offers.

The industry is also helping to meet the UK's obligations under the EU Renewables Directive. This requires the UK to source 15% of its primary energy from renewable sources by 2020, equivalent to a seven-fold increase in UK renewable energy consumption from 2008 levels: the most challenging of any EU Member State¹. Some forms of Energy from Waste (EfW) are officially defined as renewable, and EfW currently provides over 6% of UK renewable electricity – over 1,500 GWh (Gigawatt hours) in 2010, according to the Department of Energy and Climate Change (DECC). This is enough to power almost 200,000 homes for a year, or in other words, nearly all the homes in a city the size of Edinburgh.

We are helping the UK tackle climate change

In the past, methane emissions caused by biodegradable waste in landfills has been a significant proportion of UK greenhouse gas (GHG) emissions. The industry has worked hard to cut landfill methane emissions by 72% since 1990 through:

- Diverting biodegradable waste away from landfill.
- Capturing the methane gas from landfills and using it to generate electricity, with approximately 4,900 GWh generated in 2010.

The industry is also reducing its operational emissions. ESA has developed a reporting protocol to help measure this, and returns from ESA Members show GHG emissions from all waste managed in the UK have fallen by 70% since 1990.

But the industry's influence in cutting emissions goes much wider. Working with householders, local government and the environmental movement, municipal recycling rates have risen exponentially. In the vast majority of cases, recycling uses less energy (and hence creates fewer carbon emissions), than producing virgin material. For example did you know recycling aluminium is 20 times more energy efficient than making it?²

We are helping make Britain's energy system more secure

Britain's energy policy is under enormous pressure. One third of the UK's electricity generating capacity is due to close by 2020, including most of our coal and nuclear power stations. New coal plants would be too carbon intensive. New nuclear plants remain a possibility but are less certain in the aftermath of Japan's nuclear incidents. Wind is likely to continue to be installed, but delivers intermittent power. Gas power stations may fill much of the gap, but at the cost of increasing reliance on imported gas, much sourced as shale gas through processes which are attracting increasing opposition.

Energy from Waste, whether in the form of incineration with energy recovery, landfill gas, or biogas from Anaerobic Digestion (AD), suffers from none of these problems. It is indigenous, largely renewable, and reliable. Britain needs more of it.

What ESA is doing...

One of ESA's roles is to work with its ESA Members to raise operational standards across the industry. As part of this we are discussing a 'Responsibility Deal' with the Government, which will clarify the ways in which the industry is committed to building on the progress made over recent years in increasing recycling rates. ESA is also developing a Code of Practice for the operators of Materials Recovery Facility (MRFs), which will help ensure the output from MRFs is of consistent quality, which will maximize the proportion of recycled material turned into new products.

¹ DECC's Renewable Energy Strategy (RES)

² Source: Alupro

Delivering Green Growth

With the economy struggling to recover from the worst recession in decades, Britain desperately needs businesses which have real potential to create new economic growth and jobs. But the days when the public would accept that environmental degradation was an acceptable price to pay for economic growth have long gone. As the Government has made clear, the priority must be 'green growth'.

The waste management sector is well placed to deliver green growth

The sector has a number of attributes that make it uniquely suited to delivering green growth:

- Its economic impact is geographically dispersed.
- It offers better value for money than some other higher profile green sectors (see below).
- The modern waste management facilities being planned will improve Britain's environmental quality.
- Companies are ready to invest now.

Waste infrastructure offers excellent 'green growth' value

Investment in the waste management and recycling sector contributes to several of the Government's key environmental objectives. It diverts biodegradable material from landfill, but it also leads to significant carbon savings as well as the generation of renewable energy. And green jobs are another important element of waste management investment. The table below provides a guide to the approximate benefits arising from £1 billion invested in the waste sector, as compared to onshore wind.



Comparison of investment impact of waste and onshore wind		
	Waste Infrastructure	Onshore Wind
Investment	£1 billion ³	£1 billion
Carbon savings per annum	4 million tonnes	1.4 million tonnes
Material recycled per annum	1.4 million tonnes	0
Renewable generation p.a.	300 Gigawatt hours	3,250 Gigawatt hours
Permanent jobs created	3,000	650

The economic impact from new waste processing facilities would be significant⁴

- Meeting our recycling targets would save English businesses and households over £13 billion in landfill costs.
- Different estimates for the required capital investment range from **£7.5 billion to £20 billion**
- Additional waste processing from the new facilities would add almost **£2 billion** to GDP.

- The investment required would lead to over **20,000** construction jobs followed by almost **25,000** additional permanent jobs across England's economy.
- These permanent jobs would lead to over **£210 million** extra spending in the economy.

³ Invested in a mix of modern waste infrastructure
⁴ ESA estimates based on published sources & modelling by Scott Wilson Ltd. See www.esauk.org for more details

The Government can help unlock this investment

The waste market is largely created by regulation. This means that the ability of the industry to make the large investments required to move the UK's waste up the waste hierarchy depends on the ability of the Government to ensure a regulatory framework which is fit for purpose, stable, predictable and properly enforced. If the policy framework does not meet these criteria, then even the largest companies in the sector will struggle to build a strong economic case for investment and their funders will be reluctant to commit capital.

What ESA is doing...

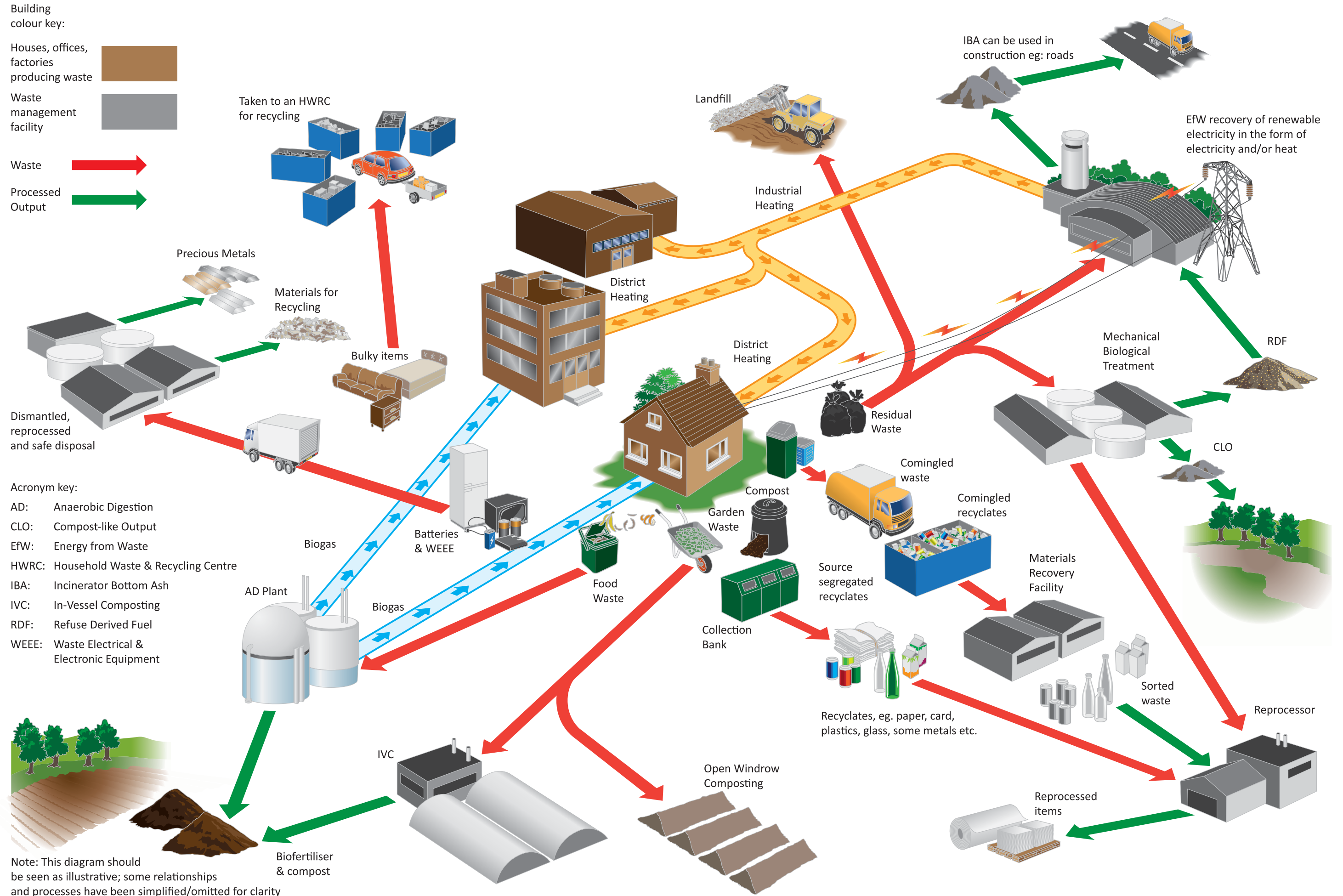
ESA is lobbying to create the policy framework the industry needs to invest. In particular, ESA is calling for:

- A planning system that enables waste management investments in line with national and local need and good practice to get planning permission.
- No picking of technology 'winners' by Government.
- 'Grandfathering' of incentive schemes to help give investors confidence.
- A recognition of the role of Energy from Waste in energy policy.
- Green procurement by the public sector to create end-markets for recycled materials.
- Much stronger policing of environmental crime.

More details can be found in our publication *Driving change: policy proposals for a greener government* available at www.esauk.org



How Waste and Resource Management Works



Looking After Our People

Over 140,000 people are directly employed in the UK waste management and recycling industry. These individuals are employed in all parts of the UK in roles ranging from skilled manual work to scientists and engineers (support services such as consultants, contractors and plant/equipment suppliers are also involved in the industry but not included in this estimate). These people are the core of our companies.

Health and safety is a priority

More than most sectors, waste management involves hazards to employees which must be managed. Collection operatives must work in the middle of rush hour traffic, handling materials such as broken glass and sharp metal. Materials Recovery Facility, landfill sites and EfW plants involve large scale machinery and moving vehicles. Hazardous wastes, from clinical waste to toxic materials, must be handled and disposed of in a way that isn't harmful to the environment or human health.

Given this context, health and safety has been a major priority for many years. ESA's Members are committed to creating a safe working environment for their workforce and the public alike and since the launch of ESA's accident reduction charter in 2004 have reduced accidents by over 60%⁵.

Potential skills shortages must be avoided

New technologies, increased mechanisation and the ever increasing need to find ways of recycling waste means the waste industry is an exciting industry to be part of. However, there is a shortage of skilled operators and technical experts in the sector which means there are numerous career opportunities available. The demand for highly qualified engineers, operational managers and processing technicians is expected to grow significantly in the immediate future with 200,000 people expected to be employed in the industry in 2020. The UK's first ever dedicated Apprenticeship for the waste management industry has been developed by Energy & Utility Skills (the Sector Skills Council) in partnership with employers.

What ESA is doing...

- ESA has established a training partnership with the Chartered Institution of Wastes Management (CIWM) to ensure that industry has access to courses which will meet the sector's training needs.
- In 2004, ESA and the Health and Safety Executive launched an accident reduction charter which aimed to reduce the incidence rate of accidents reportable under the reporting of injuries, diseases and dangerous occurrences regulations (RIDDOR) by 10% every year until 2013. ESA's commitment to the charter was strengthened with the launch of a sectoral Health and safety strategy setting out the industry's health and safety goals and the activities required to meet these goals within a clear timetable.
- ESA continues to work with its Members to reduce accident rates and ensure the ongoing commitment to prevent illness and injury to industry workers and the general public.

Innovation

The use of technology has become fundamental, helping ever more value to be recovered from waste.

Increasingly automated and advanced processes and new technologies are becoming much more widely employed. Innovations being explored include:

- **Pyrolysis:** involves thermal decomposition of waste creating a solid residue, and a synthetic gas (syngas) which can be used as a fuel to generate electricity or steam.
- **Gasification:** a process somewhere between pyrolysis and combustion and produces a syngas which can then be burned in a turbine or engine to produce electricity and steam.
- **Plasma Arc Gasification:** passes a high voltage electrical current between two electrodes, which creates an electrical arc. Inert gas is passed through the arc and into waste material which is broken down by the extremely hot temperatures, producing syngas, heat and solid residue resembling obsidian.
- **Waste to fuel:** involves waste derived from organic matter being converted into fuel. Biogas (a product of Anaerobic Digestion), landfill gas and syngas (produced during gasification) are all now being used to power a range of vehicles.

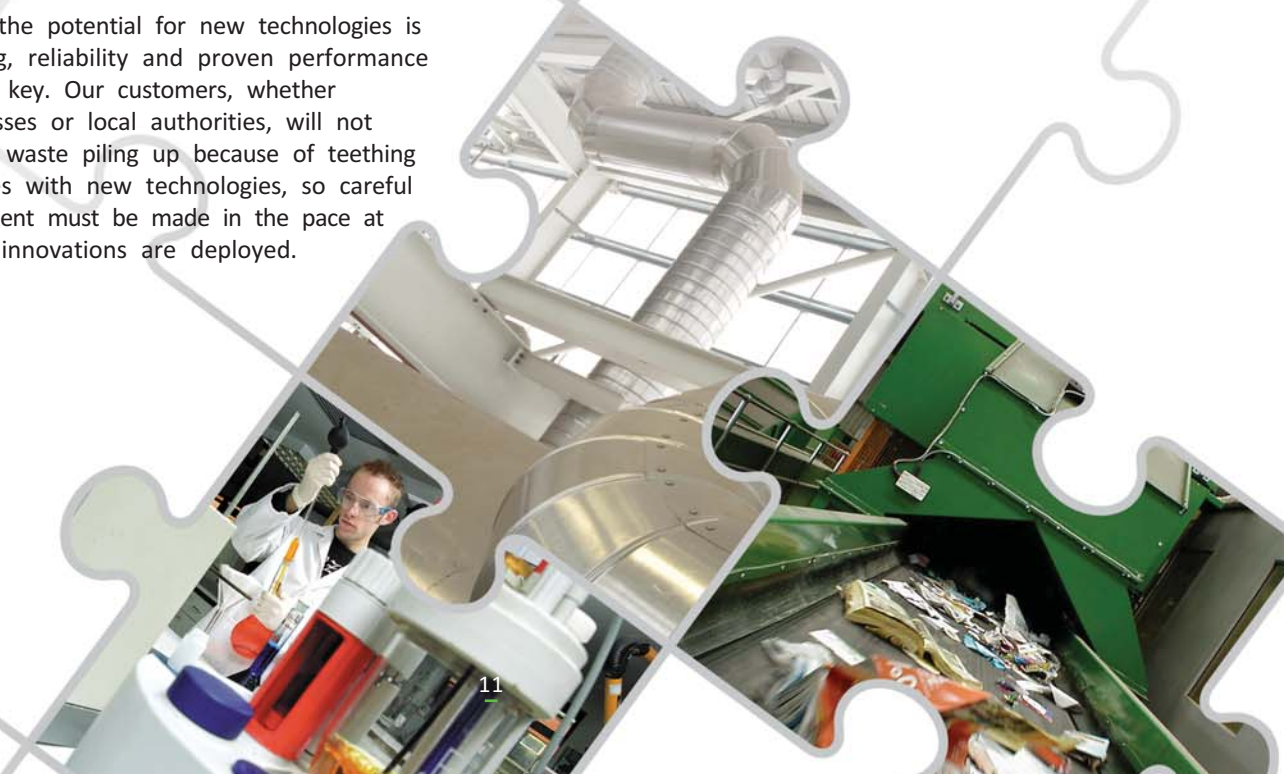
While the potential for new technologies is exciting, reliability and proven performance is also key. Our customers, whether businesses or local authorities, will not accept waste piling up because of teething troubles with new technologies, so careful judgement must be made in the pace at which innovations are deployed.

SITA UK powers its vehicles with Liquid Biomethane (LBM)

In partnership with Gasrec, the UK's first commercial producer of liquid biomethane (LBM) fuel from landfill gas, SITA UK is generating a renewable resource from municipal waste that is already helping to power vehicles across the country which reduces reliance on fossil fuels and lowers emissions at the same time.

SITA UK and Gasrec opened the UK's first LBM plant at the Albury landfill site in Surrey in 2008. The facility now produces over 5 million litres of LBM each year – which is enough to power 1,098 waste vehicles.

Landfill gas is tapped off, collected and transported to a site where contaminants and gases are removed and it is refined to 98% methane before being liquefied and then used in SITA UK's vehicles. Using LBM means potentially harmful greenhouse gases are not released into the atmosphere, as the landfill gas is used and by using it instead of fossil fuels means there is less reliance on finite resources. In addition, the converted engines that use LBM have the added bonus of reducing Carbon Monoxide emissions by 98% and are significantly quieter.



Veolia Environmental Services and Recyclebank pioneer rewards for recycling

Innovation can be about service delivery as well as technology. Following the hugely successful Recyclebank pilot and subsequent launch run by Veolia Environmental Services and the Royal Borough of Windsor & Maidenhead, residents in Lambeth will become the first in London to participate in the innovative Recyclebank recycling rewards scheme.

In 2009, over 6,500 households tested the scheme, earning Recyclebank points for their recycling efforts. Since then, according to the Royal Borough of Windsor & Maidenhead:

- 61% of eligible households have activated their rewards accounts.
- More than 20 million Recyclebank Points have been earned for discounts and offers at over 100 shops, leisure centres, businesses, attractions and cafés/restaurants; many residents have given their Points to charity and schools.
- Residents in the trial increased their recycling by 35%.

The implementation of the Recyclebank programme in Lambeth, in partnership with Veolia Environmental Services, is a key part of Lambeth Council's plans to encourage more people to recycle and save costs by reducing the amount the borough has to pay for waste disposal.

The initiative, which officially launched in May 2011, will allow 51,000 multi-occupancy households across the borough to start earning points for their recycling efforts. If it is successful, it is planned that the Council will roll out the programme to all residents in the Borough within 12 months.

What ESA is doing...

ESA sponsors the Letsrecycle award for 'Innovation in Design of a Waste Management or Recycling Facility'.

Working With Communities

Most of us adopt a mindset of 'out of sight, out of mind' when it comes to waste, and so it is unsurprising that communities are sometimes dubious about hosting waste infrastructure. Equally, waste management companies sometimes find the planning system frustrating to work with. For example, when the very local authority which has contracted with them to build a plant rejects the planning application, or when the development plan, to which the company must pay great attention, is many years out of date and takes no account of changing thinking about waste management.

The Government's policy of localism has rightly focused attention on these issues. While there is no easy solution there are some clear issues to be addressed. The industry needs to:

- Ensure that the best practice that exists in working with communities, both in minimising nuisance from operating sites and consulting them pre-application is as widespread as possible.
- Articulate and emphasise the benefits of waste infrastructure to local communities.

The Government, local authorities and the waste industry also need to work together to resolve the debate about how best to realise community benefits. For example through overcoming the market failures that can undermine the economics of district heating schemes to make use of surplus heat from EFW; or clarifying how the additional income from Business Rates paid by a new waste development will benefit those most affected by the development.

ESA's Members work with communities, helping to better the environment for the local community through funding a variety of projects paid for from landfill tax credits. Some of these projects are listed overleaf but that's not all - within the 2006-2009 period ESA's Members planted over 300,000 trees, over 10 km of hedgerow and planned or achieved over 1900 uses for restored land for either agriculture, nature conservation, amenity, recreation or industrial purposes. In addition to this, ESA's Members had 93% of landfill sites within a Local Biodiversity Action Plan in 2008.

Some of the schemes ESA Members operate are below:

- Biffaward is a multi-million pound fund which awards grants to community and environmental projects across the UK. The fund's money comes from landfill tax credits donated by Biffa Waste Services. Biffaward is managed by the Royal Society of Wildlife Trusts on Biffa's behalf.
- More than £1million in landfill tax grants from the Cory Trust has benefitted Carrick District Council's local community. Supported projects include a new waste and recycling education centre at the Truro depot and hundreds more such as a garden of reflection for disabled youngsters and new stained glass windows made from recycled bottles for a local church.
- Viridor provided £9,409,206 of funding for conservation and community projects in areas of landfill operations via the Landfill Communities Fund in 2010 alone. Such projects can create significant long-term environmental and social benefits, including jobs and volunteer engagement opportunities. This successful and innovative tax credit scheme enables landfill operators to contribute up to 6% of landfill tax liability to registered Environmental Bodies, such as Viridor Credits Environmental Company, providing important funding for local communities and conservation groups.
- WRG has provided new education facilities for school pupils and community groups, with more than 2,000 children a year are expected to take part in the national curriculum-linked education sessions through an interactive schools website www.re3schools.org.uk
- ESA Members actively encourage the re-use of bulky household items, such as fridges, freezers and televisions. Some ESA members work with local companies, who recondition bulky items and sell these on to low income families at affordable prices, ensuring that the waste moves up the waste hierarchy.

Tackling waste crime and fly tipping

One issue which affects the quality of life in local communities is the extent of waste crime, ranging from fly tipping at one end to organised crime at the other. Businesses have a responsibility to ensure the waste they produce or handle is managed and disposed of legally – in 2009/10 almost 1,050 illegal dumping incidents were dealt with by the Environment Agency and over 960 illegal waste sites were stopped. However, with the average fine in 2009 being £5,900, it is clear that the penalties are insufficient to deter many criminal operators.

What ESA is doing...

ESA is determined to see tougher action on companies and individuals who deliberately flout environmental laws. To this end we are working with the Environment Agency (EA) to ensure that ESA Members' intelligence about waste crime is passed on to EA in a form that can be acted on. We are also lobbying for much tougher sanctions on waste criminals.



The Prime Minister, David Cameron, in a speech to Business in the Community in December 2010, challenged all businesses in Britain to show their commitment to wider society through doing **five things in particular**. In each of these areas the waste management industry has a good record:

- 1 **'Improving skills and creating jobs':**
The industry is developing training programmes and is hoping to create 40,000 new jobs by 2020.
- 2 **'Supporting SMEs':**
The industry provides services to SMEs, whose recycling rates have risen steadily in recent years.
- 3 **'Cutting carbon and protecting the environment':**
Improving the environment is the industry's raison d'être. And greenhouse gas emissions from the sector have been cut by 70%.
- 4 **'Improving the quality of life and wellbeing of employees':**
The industry has reduced accident rates and is committed to making further gains.
- 5 **'Supporting local communities':**
The industry operates many local schemes - please see previous page for examples.

