

Corporate sustainability lessons learned

Zero waste to landfill: towards 100% recycling

We're building our blueprint for better business. We're learning what works and what doesn't. We know our clients are, too, and have expressed an interest in us sharing our experience.

So we've created this series of 'lessons learned' from our major initiatives.

Zero waste to landfill

Five years ago we set ourselves an ambitious target to divert all waste from landfill, as part of an overall waste transformation plan. In June 2012 we achieved this aim. This case study outlines what we've learnt about managing our waste and draws out key lessons from this period.

Why tackle landfill?

PwC UK is committed to 'doing the right thing for our clients, our people and our communities'. This includes reducing our environmental impacts. Tackling our consumption of materials and pollution from our operations, especially our greenhouse gas emissions, is an important part of achieving that goal.

As a professional services firm, the levels of waste we generate are relatively modest compared to other industries. Nonetheless, greenhouse gases from waste totalled 7.5% of our footprint in 2007. We wanted to minimise this and other environmental impacts, and reduce our operational costs. Plus, staff surveys have shown that being green matters to our people, helping engagement and pride in working for PwC.

In the Waste Hierarchy (Figure 1), landfill is the treatment of last resort. This is primarily because it can be very damaging to the environment due to the methane and carbon dioxide emitted during decomposition and the harmful leachate – chemicals which can seep into the soil and subsequently into water reserves, impacting wildlife as well as food systems and human health.

Burying waste also locks away resources. Replacing them impacts upon carbon emissions, because of the energy required for extraction and manufacturing of new materials.

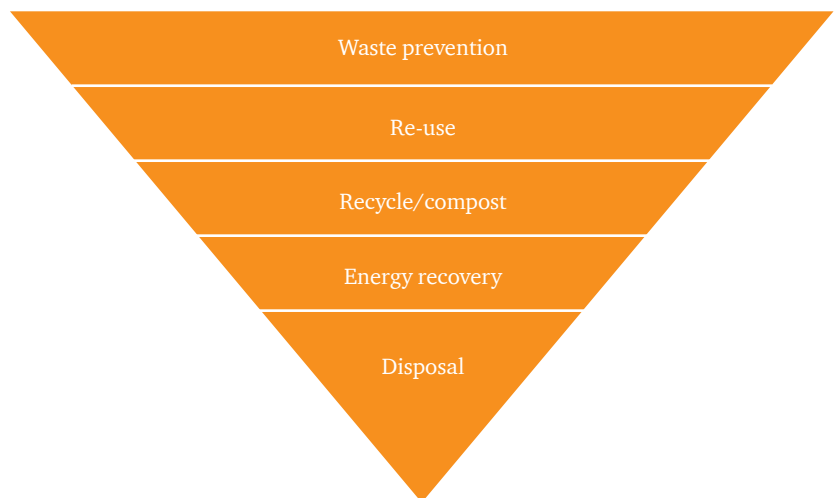
UK landfill sites are due to reach capacity by 2018 and the 'landfill tax' (currently £64 for every tonne) is a further incentive to find better alternatives.

A new approach to our waste

From the outset we knew we needed to understand our waste to tackle it properly. Initial compositional analysis revealed that our main waste materials were confidential paper, plastic, food, wax cups and other packaging.

In 2007-8, we used this information to develop a waste transformation plan, informed by the EU Waste Framework Directive. We considered our waste in terms of its impact on the environment throughout the whole product life cycle, from material sourcing to disposal. We used the Waste Hierarchy to shape our approach, preventing waste wherever we could, finding ways to reuse items and recycling as much of the remaining waste as possible. Residual items would be sent to incineration with high efficiency energy recovery, to minimise the climate change impacts.

Figure 1: EU/Defra 2008 Waste Hierarchy



The aim was to divert as much as possible away from landfill and select the best treatment available for each waste stream.

We set ourselves two targets to provide a clear direction as part of the overall plan: To achieve zero waste to landfill by July 2012 and to simultaneously reduce total waste produced per head, by 20%.

In tandem, we set other environmental targets, including one to reduce the overall carbon emissions intensity of our operations, ensuring that our approach to waste management also supported our wider sustainability objectives.

What we did

Securing quality data

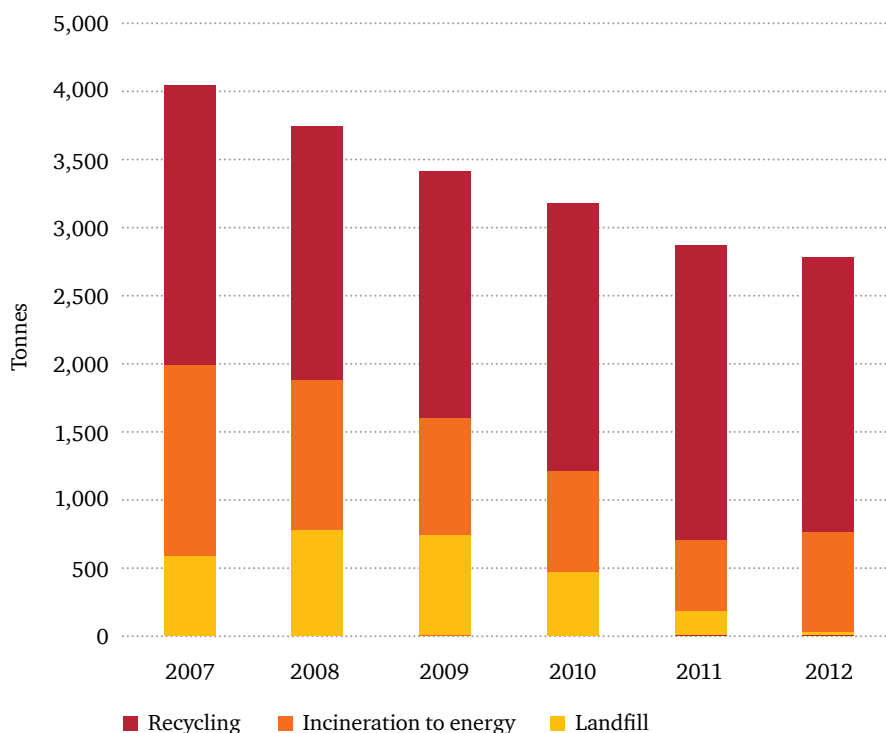
Having properly understood the challenge facing us, we needed our waste contractors to accurately track and weigh our waste to assist with analysis and reporting. Many were not used to operating in this way. It meant re-evaluating our supplier base and negotiating new contracts with those providers willing to change their approach, and to innovate.

Minimising our waste

We eliminated as many unnecessary inbound materials as possible and reduced paper consumption through the use of multi-functional devices (MFDs). These print double-sided as default and require staff to use a secure password to collect documents, eliminating unwanted printing (and improving information security at the same time).

For bulkier items such as furniture, we aimed to reuse end-of-life products, or offered them to community organisations.

Figure 2: Waste disposal



The challenge of diverse offices

We have approximately 17,000 employees working in 35 offices across the UK and Northern Ireland. For efficiency we contracted a national waste supplier, but additional sub-contractors have had to be employed to ensure full regional coverage.

Finding the right waste facilities

Commercially viable recycling and incineration facilities were not initially available for all materials in all regions so we staggered the roll-out of our new approach, starting with those areas where collections were possible. Initially we implemented recycling for confidential paper and then plastic and cans, in each case starting in London and subsequently extending the service into other regions.

Later, in 2009, we were able to start recycling our waste wax cups and to send our waste food to be treated using anaerobic digestion, a process that also captures biogas for energy and produces digestate (a nitrogen-rich fertiliser). As facilities became available more widely, we introduced the same systems across the country.

Working with landlords

Many of our office buildings are leased and we found that it can be harder to implement changes where the landlord is responsible for waste disposal. Negotiations sometimes took considerable time and in a few offices we opted to bypass the landlord completely and manage our waste independently.

Efficient collections

We were conscious that using multiple waste providers for different waste streams across all of our offices could mean more journeys to collect the waste, increasing the carbon emissions associated with its disposal. So, we asked our contractors to consolidate collections from PwC offices, which also simplified our weighing processes.

In addition, onsite compaction allowed us to store waste for longer, further reducing the number of collections needed.

Engaging our people

Changes to our waste collections were a key part of our programme, but we couldn't make them work without the support of our people.

Waste, sorted

Diverting waste from landfill is not just about having the right suppliers in place. In order to recycle our waste effectively, staff had to learn new behaviours.

We removed all desk-side bins and replaced them with shared recycling stations in central locations. Instead of placing all their rubbish in a single bin of their own, we asked our staff to segregate their rubbish. This initially met with considerable resistance, but complaints eventually subsided, demonstrating that people do adapt to changes of this type. Indeed, the change tangibly demonstrated our commitment to sustainability and highlighted the importance of recycling to our people. In January 2011, when we asked our staff which sustainability challenges we should be tackling, recycling emerged as a top issue.

Avoiding contamination

When the bins were first introduced staff often placed materials in the wrong ones. We gathered feedback by standing at the recycling points and talking to people to better understand which items tended to cause confusion. Signage was then developed, providing clearer guidance. We've since experienced a noticeable drop in contamination levels.

Leading by example

The removal of desk-side bins was accompanied by an ongoing communications campaign designed to educate our people and to drive positive behaviours. News articles sent to staff and posters near the recycling stations thank them for their efforts, highlighting the volume of waste avoided and reminding them of the environmental benefits.

Food for thought

Food waste bins initially attracted fruit flies and complaints about the smell. We tried several different approaches until we found a solution that suited staff. Using pedal operated bins works well, because they seal more effectively when closed. We also started to empty the food waste bins more regularly. Together these actions have now resolved the early issues.



7 More London

Recycling station



Closed loop benefits

Paper accounts for the lion's share of our waste, by weight, and we've worked hard to reduce our consumption, achieving a 39% drop over the last five years. We've also established a closed loop recycling solution that turns our confidential waste into paper towels for use in the washrooms in our offices.

Recycling our paper instead of sending it to landfill not only conserves materials, but significantly reduces our greenhouse gas emissions. We estimate that this waste treatment switch has cumulatively cut 2,371 tonnes of CO₂e¹ between 2008 and 2012, (approximately 11% of our actual, total, waste-related carbon footprint over the same period).

We raised awareness with signage on mirrors above the paper towel dispensers, as part of an overall sustainability awareness campaign when we moved 5,500 people into our new London offices in May 2011.

¹ Calculated using Defra 2012 carbon emission conversion factors.

Working in partnership with our suppliers

Tackling our waste hasn't just meant working in new ways with our waste contractors. We've also found it helpful to collaborate with other suppliers. For example, the removal of desk-side bins has sped up waste collection for our cleaning staff, freeing up time in which they can check the waste is sorted into the correct containers and provide feedback on contamination.

We also asked our catering suppliers to change some of their food packaging to enable it to be recycled. Jacket potatoes, for example, were previously served in unrecyclable polystyrene containers but now come in recyclable plastic.

Innovative solutions

Wherever possible, we view our waste as a valuable resource, and have successfully developed some proprietary 'closed loop' solutions, turning waste into new items which can be used in our offices. Our waste paper, for example, is securely shredded, recycled and turned into paper towels for our office toilets (see inset). We also take waste cooking oil from our London office canteens and from other organisations, and refine it into biodiesel for use in our tri-generator in our new offices at 7 More London, providing energy for the building.

Sharing these solutions with our staff has been an effective engagement technique, too. We've found that they are passed on extensively through word of mouth, enhancing understanding of sustainability and increasing pride in working for PwC.

"We're delighted to have created local, closed loops with our office waste. It shows it can be done on a company level."

Bridget Jackson,
Director of Corporate Sustainability

What we achieved

Zero waste to landfill

Over the last five years we've gradually increased the amount of waste that is recycled and reduced the amount we incinerate. By the end of June 2012 we achieved our target of diverting all waste away from landfill for the first time.

We've also exceeded our target to reduce the total waste generated per head by 20% by 2012, achieving a 27% reduction (Figure 3).

We now recycle 72% of our waste, versus 51% in 2007 and have reduced the overall annual quantity of our waste by 31%.

All this means that the greenhouse gas emissions from our waste have dropped from 5,883 tonnes of CO₂e in 2007 to 3,304 tonnes of CO₂e in 2012, a reduction of 44%.

Less waste, lower costs

Comparing our current waste management costs with what we'd be spending if we'd continued as we were in 2007 demonstrates the business case for taking a holistic approach to waste management. Overall, we estimate that our costs are almost a fifth lower than they would have been (Figure 4), saving over £400k over five years.

But it's worth noting that waste reduction has made an important contribution of over £730k to the estimated savings, and that without it, achieving our zero to landfill target would actually have been approximately £320k more expensive than our old approach.

Whilst recycling has increased our costs at present, we believe we have the right environmental and commercial approach for the longer term. Both the EU and devolved administrations in the UK likely to provide greater incentives to recover more materials in the future. By using more recovered materials, we can also reduce our exposure to price fluctuations caused by volatile commodity prices. And, supporting use of secondary markets will also help the sector deliver on economies of scale in the future.

Figure 3: Waste: landfill and total waste/head

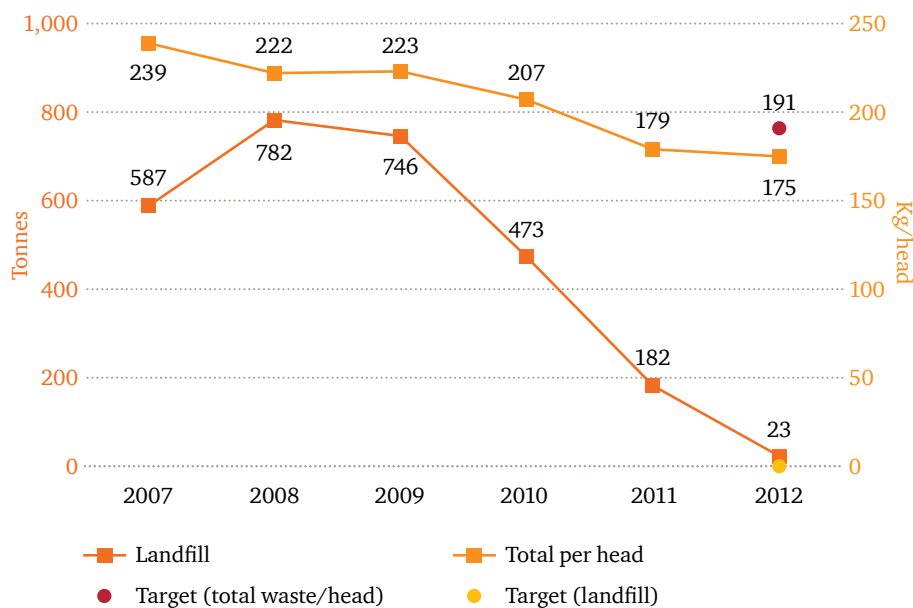
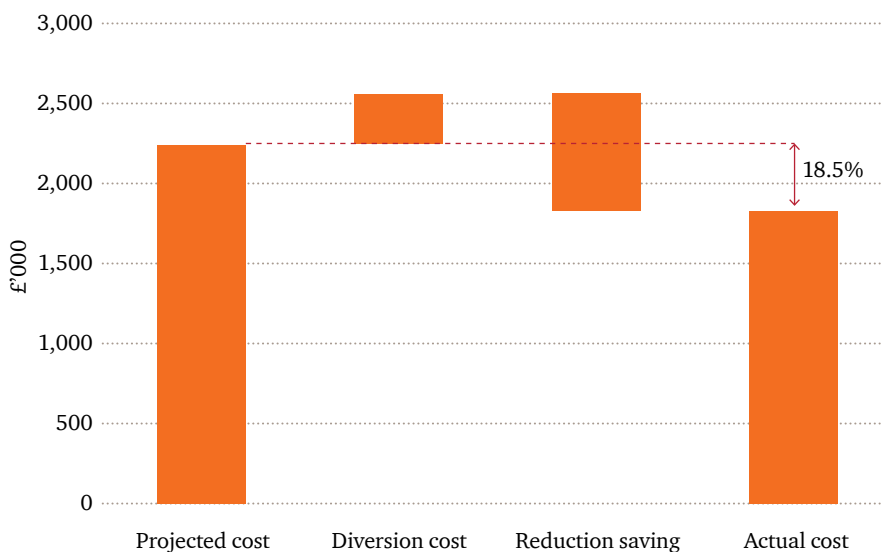


Figure 4: Cumulative costs and savings – 2008 to 2012



Lessons learned

We set out a vision and sought to find ways to achieve it through our waste transformation plan. This enabled us to move relatively quickly, and to stay the course when we experienced challenges.

We adopted an approach of trial and error, especially in the early years. With hindsight, we know that success requires a combination of analysis, innovation and tenacity. It also needs a broad, change management approach that integrates office infrastructure and staff behaviour changes. We've summarised the lessons in Table 1.

What next?

We're really proud of the progress we've made, but we're not stopping here.

We've set new environmental targets that aim to further decouple our operations from their environmental impacts. For waste, this includes eliminating as much incineration as possible. We've set ourselves an ambitious goal to recycle 100% of our waste by 2017, and reduce our absolute waste by 50% by 2017 from our 2007 baseline.

We'll evaluate our next steps in accordance with the new UK Waste Directive expected in early 2013, and work with more suppliers to find the best treatments for each waste stream.

Having a clear milestone – zero waste to landfill – is a strong platform for engaging staff, so we're celebrating our achievement and thanking them for making it possible. We'll be asking them to play their part in meeting our new targets in due course.

Table 1: Lessons learned

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| Clear targets and a clear vision | Setting a target with a specific outcome and timeframe is central to delivering your sustainability vision. It's also important to consider your waste strategy alongside other objectives, so that it doesn't compromise work done to mitigate other environmental damage such as carbon emissions. |
| Understand the problem | Compositional analysis allows you to develop a coherent waste strategy that tackles the most significant waste streams to maximise your early results. |
| National strategy, local solutions | Considering regional and local variation is important for any waste management plan. A national strategy and staggered roll-out allows time to find local solutions, and to test new approaches before applying them across the whole business. |
| Collaborate with suppliers | Suppliers willing to collaborate and innovate are crucial to any waste elimination plan. Notably, waste service providers need to be willing to provide detailed waste information on a regular basis. Collaboration may also extend to other on-site facilities service providers, or suppliers providing products or services which create waste. An end-to-end mindset is important. |
| Take your people with you | Employee engagement is key, particularly if you're reliant on your staff to segregate waste prior to collection. Listen to feedback to find solutions acceptable to employees, and make recycling and waste minimisation as easy as possible. |
| Treat waste as a resource | Thinking of waste as a precious resource is helpful in finding creative solutions for items that can be reused or can create closed loop solutions. It also brings considerable benefits in terms of carbon emissions. It's a great way to engage staff, and can contribute to the long-term security of supply of materials (e.g. fuel) required to run your business. |

About sustainability at PwC

For more information on our corporate sustainability agenda visit:
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