

Working with Tesco

Product carbon footprinting in practice



Tesco represents the largest test of the BSI PAS 2050¹ draft product carbon footprinting method and the Carbon Trust Carbon Reduction Label. Set in the context of the commitment from Tesco's CEO to find a "universally accepted and commonly understood measure of the carbon footprint of every product we sell", this case outlines the benefits of conducting footprinting projects across multiple products in multiple categories to maximise learning and consumer education opportunities.

¹ BSI Publicly Available Specification (PAS) 2050 is based on the product carbon footprinting method originally developed by the Carbon Trust and trialled with Walkers, Boots and innocent. The Carbon Trust later co-sponsored, along with the UK Department for Environment, Food and Rural Affairs (Defra), the development of PAS 2050 by BSI British Standards.

Company background

Tesco plc is the third largest grocery retailer in the world. It employs over 440,000 people in 13 markets – 280,000 of those in the UK. Over 30 million people shop with Tesco worldwide every week.

In 2006, Tesco launched its 'Community Plan' in the UK, before rolling it out to its other markets. Sir Terry Leahy, Tesco's CEO describes this as 'our plan to put social and environmental issues at the heart of our business².'

The Tesco Community Plan discusses a wide range of corporate and social responsibility areas. It identifies three strategic priorities for tackling climate change:

- Setting an example by measuring and reducing Tesco's own direct carbon footprint.
- Using 'resources and relationships to work with others to achieve a low carbon economy of the future'.
- 'Empowering customers to make environmental choices...by providing the information on which to make an informed choice'.

In January 2007, Tesco announced it would measure and publish its direct carbon footprint. Tesco worked with environmental consultant ERM to map the total carbon footprint of its business worldwide. Tesco used the knowledge gained from this study to prioritise areas in which to concentrate efforts to achieve carbon emissions reduction and as a mechanism to track progress. Tesco published the results of this survey on its website.

The product carbon footprinting and labelling project described in this case study builds upon the knowledge and data gained in the organisational carbon footprint work, but it goes further to cover Tesco's second and third strategic priorities laid out above. The project helped Tesco understand the emissions associated with the full life cycle of selected products – allowing the identification of wider emission reduction opportunities and empowering consumers to make environmental choices.

Product carbon footprinting and labelling pilot: motivation

As part of the development of its Community Plan, Tesco asked consumers about their attitudes to climate change. It found that many consumers wanted to do more to mitigate climate change but there were a number of barriers which prevented them from doing so. These can be split into three main types:

1. They lacked the basic information and understanding to know which products to buy and how to use them.
2. They wanted to be sure that any small changes they made individually were part of a larger movement by consumers and businesses to cut emissions.
3. They wanted assurance that a switch to low-carbon consumption would not be prohibitively expensive for them to make.

In response to this, Tesco launched a broad initiative in January 2007 to empower consumer decision making by measuring and providing carbon information on everything Tesco sells. In his launch speech, Sir Terry Leahy laid out a vision for green consumerism: "We [as a society] will not tackle the challenge of climate change by enlisting only the few. The green movement must become a mass movement in green consumption. For this to happen we must break down the barriers of information and price. Customers need good information to make the right choices and they need to be able to afford to make these choices".

As part of the effort to provide this information Sir Terry Leahy announced that Tesco would be starting the quest for:

"A **universally accepted and commonly understood measure** of the carbon footprint of every product we sell – looking at its complete life cycle from production, through distribution to consumption" and

"A **clear system of labelling** so that in future customers will be able to compare a product's carbon footprint just as easily as they can currently compare its price or nutritional value"³.

To start to make this far-reaching objective a reality, Tesco agreed to work with the Carbon Trust to assess the product carbon footprint of 20 products in late 2007. This was the largest test of the product carbon footprinting method at the time, covering products across four categories:

- Potatoes.
- Light bulbs.
- Laundry detergents.
- Orange juice.

² <http://www.tescoreports.com/crreview08/cr-bus.html>

³ Speech by Sir Terry Leahy given to invited stakeholders at a joint Forum for the Future and Tesco event in central London on January 18th 2007.

The products were carefully selected to challenge assumptions and answer questions to inform the development of the PAS 2050 method. Specifically:

- Light bulbs – how to treat the ‘use phase’ of a product in which the majority of emissions comes from energy consumed during product use.
- Orange juice – how to treat seasonality in supply chains together with the impact of concentration and temperature on the finished product footprint.
- Potatoes – study products from multiple suppliers with different emissions depending on how they are cooked.
- All – look at both food and non-food supply chains.

In addition, Tesco wanted to compare footprints across similar products within a category.

Supply chain analysis and footprint calculations

Tesco invested heavily in supporting suppliers through the footprinting process. To make the process easier, it developed a template and offered one-to-one support for suppliers throughout the data collection and footprint assessment. They used supplier workshops to engage suppliers in the goals of the footprinting exercise and in interpreting the results.

Complex supply chains proved more challenging in the data collection phase, as multiple ingredients and multiple suppliers – including overseas suppliers – made data collection more complex and labour-intensive. The main difficulty was the language barrier with some suppliers.

Tesco chose to use ERM as consultants to conduct the product carbon footprint analyses, and the Carbon Trust certified conformity of the assessments against the draft PAS 2050.

Laundry detergent example

The laundry detergent example demonstrates the ability of product carbon footprinting to uncover interesting insights. Tesco found that concentrated liquid detergent had a smaller carbon footprint (600g CO₂e per wash) than washing powder or tablets (750g and 850g CO₂e per wash respectively) based largely on the manufacturing stage in the life cycle. Concentrated detergents use less of some ingredients and less packaging; this gives them a smaller footprint than their diluted equivalent. Ingredient choice also makes a difference: the materials used in concentrated liquid detergent are less carbon intensive than those used in tablets or powder.

Chart 1 shows the process map for a detergent. Chart 2 shows the life cycle emissions of different kinds of detergent.

Chart 1 Process map washing detergent

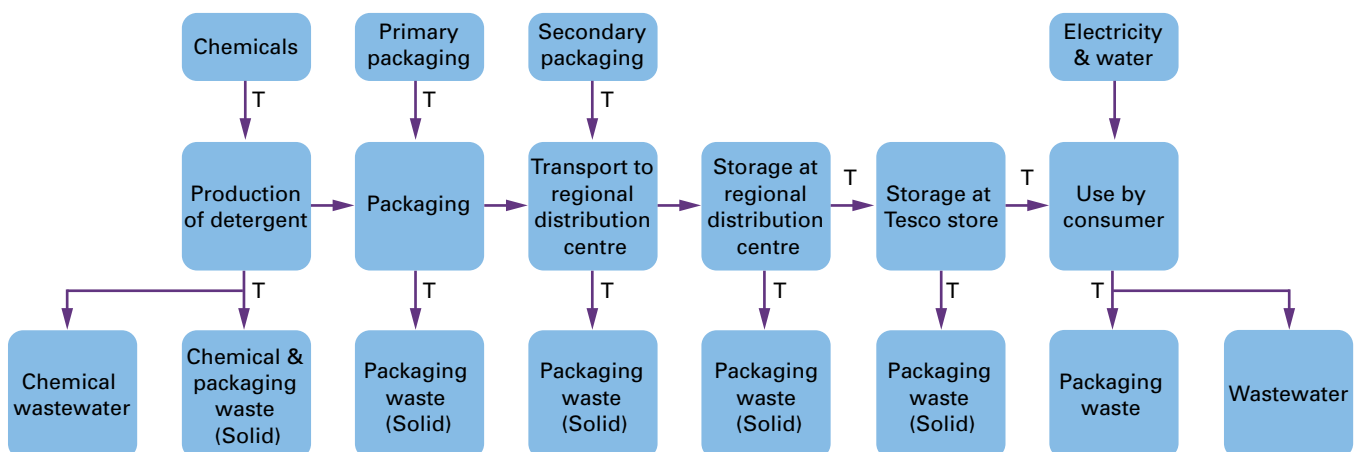
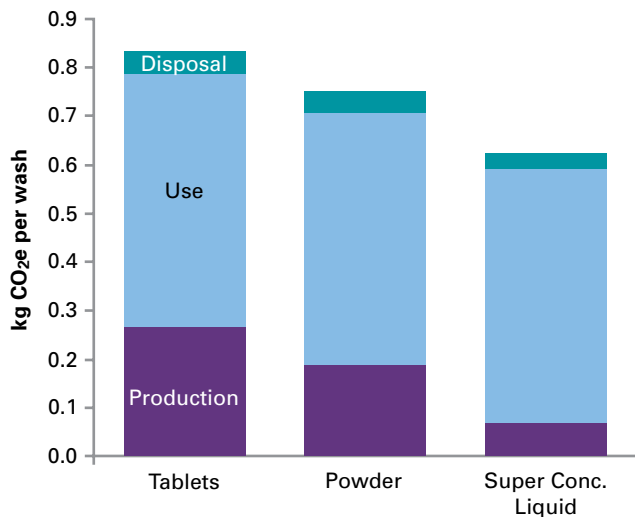


Chart 2 Product carbon footprints of different detergent types



However, the vast majority of carbon emissions of laundry detergent arises from the electricity and water consumed during the use phase (495g CO₂e per wash, which is more than 80% of the footprint for Super Concentrated Liquid Detergent). This finding drove Tesco to two actions:

- Educate consumers on their role, i.e. measure and advertise the impact of washing at 30°C and line drying.
- Work with suppliers to ensure all detergents can be used effectively at 30°C.

Informing consumers to make decisions was the primary motivation behind Tesco's decision to start the product footprint journey. Therefore, Tesco's plans involved testing a consumer-facing label from the beginning.

Use of the Carbon Reduction Label

In April 2008, Tesco began a trial of the new Carbon Reduction Label across the four product categories it footprinted. The Carbon Reduction Labels were used on-pack (Charts 3 and 5), at point of sale and in a supporting leaflet (Chart 4) in order to maximise the opportunity to inform and educate consumers. Because all the products being labelled were Tesco's own-brand, this allowed quicker packaging changes and thus Tesco could introduce the labels relatively quickly.

Tesco's wish to educate consumers and influence their behaviour was paramount to the evolution of the Carbon Reduction Label from its original design. This evolution was guided by consumer market research from the Carbon Trust, Tesco, PepsiCo and others.

In addition to displaying the product carbon footprint, commitment to reduce that footprint and stating that Tesco is 'Working with the Carbon Trust', the updated Carbon Reduction Label that Tesco displays also shows:

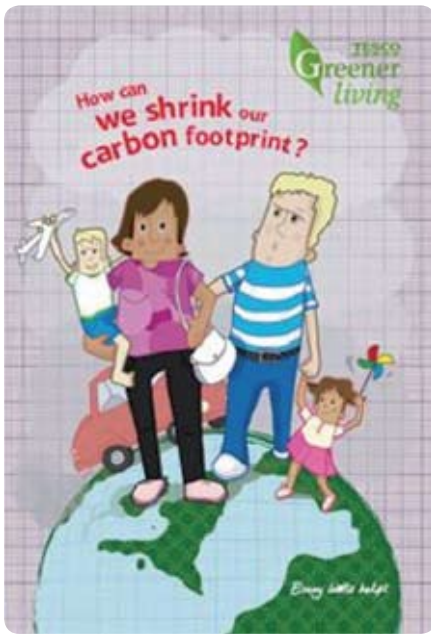
- An explanation of what a product 'carbon footprint' is: "The total carbon dioxide (CO₂) and other greenhouse gases emitted during [the product's] life, including production, use and disposal".
- Carbon comparisons to other relevant products footprinted using the same PAS 2050 method and assumptions (for example, Tesco Non Biological Tablets have a footprint of 850g per wash. The Label states: "By comparison, the footprint of Tesco non-biological washing powder is 750g per wash").
- Suggestions for consumers about how they can lower the footprint further during the use phase (for example, "Help to reduce this footprint. Washing at 30°C rather than 40°C saves 160g CO₂ per wash").

Chart 3 Carbon Reduction Label used on Tesco detergents



The on-pack Carbon Reduction Label was supported with point-of-sale label displays and the publication of a customer leaflet titled 'How can we shrink our carbon footprint?' (Chart 4) which was mailed to over 100,000 homes and is available in most large Tesco stores.

Chart 4 Tesco's consumer leaflet describing product carbon footprints



At the time of the trial's announcement Tesco's CEO said: "We are delighted to be taking this major step with the Carbon Trust. We want to give our customers the power to make informed green choices for their weekly shop, and enlist their help in working towards a revolution in green consumption. We encourage all our suppliers and competitors to support the Carbon Trust in this collaboration".

Achievements

By footprinting and labelling multiple products across four categories, Tesco maximised its opportunity to learn. Key findings include:

- How food is cooked can have a significant impact on its carbon footprint, as we discovered with potatoes. Consumers can reduce this by microwaving or boiling on the stove rather than oven cooking. For example, the carbon footprint of oven baking King Edward potatoes is more than 3.5 times greater than boiling or microwaving them.

- As conventional wisdom suggested, energy-saving light bulbs produce more carbon emissions during manufacturing than conventional light bulbs; however, this is more than offset by the energy efficiency they provide during the use phase – an example of the 'carbon myth'-busting enabled by product carbon footprinting.
 - Use phase accounts for ~99% of the life cycle carbon emissions of a light bulb, so high-impact reduction efforts would focus on increasing the energy efficiency of this phase, such as designing better low-energy bulbs and boosting their sales through consumer education and promotions.
- Raw material production is the primary driver of orange juice carbon emissions, driven by inorganic fertilisers used by the supplier. Shipping the oranges from Brazil actually caused much lower emissions than expected.
- Concentrated orange juice has a lower carbon footprint than pure squeezed juice, due to lower volumes needing to be shipped and reduced need for energy to refrigerate during transport and retail.

Chart 5 Carbon Reduction Label used on Tesco orange juice



Tesco is working hard to share these findings both with consumers – to help them make more informed purchase and use decisions – and suppliers in order to drive emissions reductions across the supply chain.

In addition, by working with a broad and challenging set of everyday product categories, Tesco put the product carbon footprinting method through a significant test.

Findings helped inform the evolution of the PAS 2050 method in key areas, such as product definitions, the need for standardisation in the use phase calculations and how to calculate emissions for a raw material produced by multiple suppliers.

Tesco's suppliers are already rolling out emissions reduction measures. For instance, its potato suppliers are introducing the following:

- More efficient refrigeration equipment, reducing both energy consumption and direct gas emissions.
- More targeted application of agricultural inputs such as fertilisers and pesticides, contributing both to lower input costs for farmers as well as reduced GHG emissions.
- Extending natural potato dormancy, thereby reducing the need for cold storage.

In addition, Tesco's suppliers have identified ways that Tesco can help them reduce emissions further, through measures such as better network planning to improve vehicle utilisation for deliveries. These results show the benefits of collaboration across the supply chain and conducting a thorough analysis of supply chain efficiency.

Road ahead

Tesco is committed to extending its trial of the product carbon footprinting method and Carbon Reduction Label on more products.

The immediate next steps for Tesco are to understand the consumer impact of the 20 products labelled so far and to footprint and label a further set of Tesco products. The key questions Tesco will address in its consumer research are:

- Has consumer understanding of product carbon footprinting and Labels increased?
- What impact does the Label have on actual consumer behaviour?

The next stage in the trial will likely include the full range of products in the categories already analysed.

Tesco would also like to test the methodology on new categories:

- Complex products with multiple raw materials.
- Complex supply chains with multiple different factories.

The goal of this phase of the trial is to better understand what it will take to footprint and label all of their products, as a first step towards developing a comprehensive strategy, including the best ways to reduce emissions over time. Armed with a greater understanding of consumer reactions – and the need for additional education – along with experience footprinting and labelling additional products, Tesco will develop a blueprint for roll-out across more product categories.

At the same time, Tesco will continue to work with suppliers to reduce emissions across the supply chain.

Key lessons

As the first pilot company to test the product carbon footprinting method and Carbon Reduction Label at scale, Tesco offers several important lessons:

- Cost of carbon footprinting declines with scale and experience – suppliers typically need help when they are contributing to a footprint assessment for the first time.
- Product carbon footprinting multiple products across categories provides greater insight to carbon reduction opportunities:
 - Comparisons also allow supply chain partners to identify new carbon saving opportunities that would not be otherwise obvious.
- Retailers have a unique opportunity to educate consumers and empower them to make more informed decisions by supporting on-pack labelling and point-of-sale information.
- 'Conventional wisdom' about carbon emissions should be tested using real data, and in many cases it can be disproved. The Tesco experience demonstrates how product carbon footprinting can help shed light on urban myths such as energy-efficient light bulbs having a higher carbon footprint than conventional bulbs.
- The power of a public commitment from senior management – for example, the announcement from Tesco's CEO helped galvanise support for the initiative both within the company and among its suppliers, who are critical to the footprinting process.

The Carbon Trust was set up by Government in 2001 as a private company.

Our mission is to accelerate the move to a low carbon economy by working with organisations to reduce carbon emissions and develop commercial low carbon technologies.

We do this through five complementary business areas:

Insights – explains the opportunities surrounding climate change

Solutions – delivers carbon reduction solutions

Innovations – develops low carbon technologies

Enterprises – creates low carbon businesses

Investments – finances clean energy businesses.

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