



The Carbon Cost of Christmas

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“Heaped on the floor, to form a kind of throne, were turkeys, geese, game, poultry, brawn, great joints of meat, sucking-pigs, long wreaths of sausages, mince-pies, plum-puddings, barrels of oysters, red-hot chestnuts, cherry-checked apples, juicy oranges, luscious pears, immense twelfth-cakes, and seething bowls of punch, that made the chamber dim with delicious delight.”

“A Christmas Carol” by Charles Dickens

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Introduction

Christmas time is accompanied by seasonal increases in our level of consumption. From eating and drinking to giving and receiving, it is the time of the year when we do things to excess. Unfortunately, it also means we are likely to have a greater impact on the environment. Our total consumption and spending on food, travel, lighting and gifts over three days of festivities¹ could result in as much as **650 kg²** of carbon dioxide emissions (CO₂) per person - equivalent to the weight of **1,000 Christmas puddings!**³ This is 5.5% of our total annual carbon footprint⁴.

However, we can still have a good Christmas and be kind to the planet. With a bit of thought we can limit the impact we have on the environment this Christmas and still have a great time. There are a number of actions we can all take which can reduce our CO₂ emissions by over 60% to **250 kg⁵**. This is equivalent to a saving in weight to **615 Christmas puddings**.

In this time of seasonal goodwill, we should all spare a thought for the planet.

Cost of Christmas in Carbon Dioxide (kg) and Christmas Puddings

	CO ₂ /person (kg)	Equivalent weight in Christmas Puddings ¹
Christmas food	26	40
Christmas car travel	96	148
Extravagant Christmas Lighting	218	335
Christmas shopping	310	477
Total	650	1000

¹Assuming an average Christmas pudding weighs 650 grams

1 Christmas Eve, Christmas Day and Boxing Day

2 This is from food (26 kg), travel (96 kg), lighting (218 kg) and consumables (310 kg)

3 Based on the net weight of a Christmas Pudding being 650 g

4 Based on the UK average footprint of 11.87 tons/person/year

5 This is due to savings from food (16 kg), travel (63 kg), lighting (2 kg) and consumables (169 kg)

Christmas Consumption

CHRISTMAS FOOD

The average person will produce **26 kg** of CO₂ from the food they consume during the Christmas period.¹

- A **vegetarian** Christmas would result in a saving of 3 kg of CO₂/person.
- An **organic** Christmas (50 per cent of food consumed being organic) would result in a saving of 2 kg of CO₂/person.
- A **low waste** Christmas could result in a saving of 7 kg of CO₂/person.

Christmas dinner will result in a mountain of raw vegetable waste - the shells of approximately 240 million Brussels sprouts and the peelings of 105 million potatoes, 20 million parsnips and 30 million carrots.⁶

A combination of a vegetarian, organic, low waste Christmas can reduce your Christmas food footprint by as much as **8 kg** of CO₂/person to 18 kg.

CHRISTMAS TRAVEL

At Christmas we will travel approximately three billion miles to visit family and friends. This is equivalent to the average Briton travelling 121 miles over the festive period.⁷ If all festive travel was undertaken by car this could result in an additional **96 kg** of CO₂/person being produced.

Switching from travelling by car to travelling by **train** can result in a saving of **63 kg** of CO₂/person.

6 RecycleNow (2007) www.recyclenow.com/home_composting/news/highlights/compost_has_real.html

7 Travelodge (2006) www.travelodge.co.uk/press/article.php?id=197

CHRISTMAS LIGHTING

Extravagant outdoor Christmas lighting displays can add £75 on to your electricity bill.⁸ This additional lighting can result in **500 kg** more CO₂/household⁹. This is 12.5 times more CO₂ than using a regular set of 160 bulb fairy lights which produces only **40 kg** of CO₂/household.¹⁰ Alternatively, energy efficient LED bulbs use only **5 kg** of CO₂/household.

CHRISTMAS SHOPPING

This year each person will spend an average £435 on Christmas gifts, of which, the most popular choices will be clothes, books, films, music, cosmetics and fragrances.¹¹ Spending £435 on these items means **310 kg** of CO₂/person – about 20 per cent of the average yearly consumable footprint of 1,500 kg.¹²

Approximately £4 billion is spent on entirely unwanted gifts – equivalent to £92 per person.¹³ Nationally, this is equivalent to **4.8 million tonnes of CO₂** being produced from unwanted gifts.¹⁴

8 Energy Saving Trust (2005) www.energysavingtrust.org.uk/aboutest/news/pressreleasesarchive/index.cfm?mode=view&press_id=468

9 This is 218 kg per person based on average housing occupancies

10 Based on being lit for six weeks for 12 hours a day

11 APCAS (2007) www.uswitch.com/news/credit-cards/OctDec2007/apacs-releases-xmas-spending-prediction.cmsx?ref=google_uk

12 Based on annual proportional expenditure and assuming an average per capita spending of £158.31 on Clothing, £25.23 on household appliances, £86.34 on audio-visual, photo and information processing equipment, £92.75 on recreational equipment, £48.16 on newspapers, books and stationary, £24.21 on personal effects

13 ICM (2006) www.guardian.co.uk/christmas2006/story/0,,1978791,00.html

14 Based on a UK population of 60 million

About **80 kg** of CO₂/person could be saved if unwanted gifts were not bought in the first place. Not giving unwanted goods could bring the Christmas shopping footprint down to **230 kg** of CO₂/person.

UK households spent almost twice as much on ethical goods last year as they did five years ago.¹⁵ If the average UK shopper bought one third of their gifts as ethical or low carbon such as recycled wine glasses or charity gifts the Christmas shopping footprint could be reduced to **200 kg**.

The average Briton spends £7.40 sending Christmas cards at Christmas. The impact from **Christmas cards** is **5 kg** of CO₂/person. Reusing cards or buying cards from charity shops is a greener choice. Using email or the phone would reduce the impact even further.¹⁶

15 Cooperative Bank (2007) //news.bbc.co.uk/1/hi/business/7120458.stm

16 It is estimated that following all shopping recommendations - only buying wanted gifts, a proportion of which are ethical, and not sending Christmas cards can reduce emissions from consumables to 169 kg of CO₂/person

Actions for a Low Carbon Christmas

■ FOOD

- Support your local economy and try buying from local organic suppliers.
- Compost your vegetable peelings after you've finished cooking to make sure that this extra organic waste doesn't head straight to landfill.
- Plan your meal carefully to reduce the amount of uneaten food thrown away – check who likes Brussels sprouts!

■ TRAVEL

- Plan your Christmas travel to reduce the distance travelled and try and use environmentally friendly modes of transport or car share.

■ LIGHTING

- Less is more when it comes to Christmas lighting! Opt for a small tasteful lighting display and turn the fairy lights off before bed and save both money and carbon.

■ SHOPPING

- When it comes to Christmas presents buy quality not quantity. Well-made goods last longer and will not have to be replaced in the New Year.
- A good Christmas gift doesn't necessarily have to be expensive. Think about giving alternative gifts such as a charity or environmentally friendly gift, an experience or giving your time.
- Give your unwanted gifts to charity or to local hospitals or hospices.

Potential Savings at Christmas in Carbon Dioxide (kg) and Christmas Puddings

	Potential CO ₂ savings/ person (kg)	Equivalent weight in Christmas puddings ¹
Food		
Vegetarian Christmas	3	5
Organic Christmas (50%)	2	3
Low waste (composting food)	7	11
A combination of vegetarian/organic/low waste Christmas	8	12
Travel		
Taking the train to family and friends	63	97
Lighting		
Using a regular a set of energy efficient LED fairy lights rather than an extravagant display	216	332
Shopping		
Not buying unwanted Christmas gifts	80	123
Not sending Christmas cards	5	8

¹Assuming an average Christmas pudding weighs 650 grams

Technical Details

CHRISTMAS FOOD

The food footprint for the average person in the UK is 412 kg of CO₂ per year. During the Christmas period (3 days of festivities), the average household will spend £169 on food and drink this year.¹⁷ This equates to £73 per person and a Christmas food footprint of 26 kg. Replacing the meat with vegetables can reduce the Christmas food footprint to 23 kg. Alternatively, replacing food with organic options can reduce the footprint to 22 kg of CO₂/person.

Between one third and one quarter of the food we buy is thrown away.¹⁸ By shopping carefully and planning meals more efficiently we can limit food waste and reduce the Christmas food footprint to 19 kg per person. A vegetarian, organic, low waste Christmas has a food footprint of 18kg CO₂/person.

CHRISTMAS TRAVEL

On a normal day, the average Briton travels 24 miles which has a footprint of 14 kg of CO₂/person associated with it. During the Christmas period the average Briton will travel 121 miles to visit family and friends. If this travel is by car, the footprint increases to 96 kg.¹⁹ By switching from travelling by car to travelling by train, the footprint of Christmas travel can be reduced to 36 kg.

CHRISTMAS LIGHTING

An average household's footprint from lighting their home and running their appliances for one year is 1800 kg of CO₂. Those households with very extravagant Christmas lighting displays can add £75 on to their electricity bill²⁰. These additional lighting costs can increase your footprint by 500 kg per household. Switching from an over the top display to 160 regular bulb fairy lights reduces the footprint to 40kg.²¹ Using efficient LED bulbs can reduce the footprint to 5 kg per household.

CHRISTMAS SHOPPING

The footprint associated with consumables is 1500 kg of CO₂/person per year. This year each person will spend an average of £435 on Christmas gifts, of which, the most popular choices will be clothes, books, films, music, cosmetics and fragrances²². The footprint of spending £435 on these items is 310kg – one fifth of your yearly amount!

A study has shown that £4 billion is spent on entirely unwanted gifts – equivalent to £92 per person²³. If the unwanted gifts were not bought in the first place, the Christmas shopping footprint would reduce to 230 kg per person.

17 www.specialityfoodmagazine.com/site/index.php/site/view/retail_christmas_will_bring_a_boost/

18 RecycleNow (2007) www.recyclenow.com/home_composting/news/highlights/compost_has_real.html

19 Travelodge (2006) www.travelodge.co.uk/press/article.php?id=197

20 Energy Saving Trust (2005) www.energysavingtrust.org.uk/aboutest/news/pressreleasearchive/index.cfm?mode=view&press_id=468

21 Based on being lit for six weeks for 12 hours a day

22 APCAS (2007) www.uswitch.com/news/credit-cards/OctDec2007/apacs-releases-xmas-spending-prediction.cmsx?ref=google_uk

23 ICM (2006) www.guardian.co.uk/christmas2006/story/0,,1978791,00.html

UK households spent almost twice as much on ethical goods last year as they did five years ago.²⁴ If the average UK shopper bought one third of their gifts as ethical or low carbon such as recycled wine glasses or charity gifts from Oxfam, the footprint could reduce to 200 kg.

The average Briton spends £7.40 sending Christmas cards at Christmas. The impact from Christmas cards is 5kg of CO₂. Reusing cards or buying cards from charity shops is a greener choice. Using email or the phone would reduce the impact even further.

TOTAL CHRISTMAS FOOTPRINT

The total impact from Christmas could be as much as 650 kg per person. Following the tips above, the impact can be reduced by over 60% to 250 kg per person.

Calculations produced by the Stockholm Environment Institute, University of York, using the Resource and Energy Analysis Program (REAP) model



**A MERRY LOW CARBON
CHRISTMAS TO EVERY
ONE OF YOU!**

²⁴ Cooperative Bank (2007) //news.bbc.co.uk/1/hi/business/7120458.stm

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