



Carbon Footprint & Action Plan

Company Name	Armstrong Printing Group
Company Address	Units 24 - 26, Armstrong Road, Royal Arsenal, Woolwich, SE18 6RS
Number of Staff	26
Building Age	3
Total Treated Floor Area (m²)	7910
Number of Floors	2
Electricity Cost (p/kWh)	£0.043
Natural Gas Cost (p/kWh)	£0.03
Study Period	February 2007-February 2008
Benchmark Classification	Air conditioned prestige

Table 1: Carbon Footprint Summary

	CO ₂ e	%
Electricity	156	8%
Natural Gas	3.4	0.2%
Diesel	33	1.8%
Refrigerant Leakage	0.46	0.0
Paper Consumption	1,670	89%
Recycling *	-5.61	0.0%
Waste	2.11	0.1%
Water	0.02	0.1%
National Rail	0.19	0.1%
Taxis	0.02	0.0
Petrol Cars	9.57	0.5%
TOTAL GHG	1876tonnes	
World Resources Institute Scope Breakdown		
Energy Direct	46.8	
Energy Indirect	156.8	
Other Indirect	1672	
Average Energy Spend (Annual)		
Electricity	£88,330	
Natural Gas	£520.00	

The table above shows the tones of carbon dioxide (CO₂) and carbon dioxide equivalent (CO₂ e) emissions calculated from the data collected on the audit day. The emissions are categorized into three types;

Scope 1, the energy direct emissions arising from fossil fuels burned directly by the business, such as boiler gas or fuel in company vehicles/fleets.

Scope 2, the energy indirect emissions from imported electricity from power stations to run electrical equipment, heating, lighting etc

Scope 3, other indirect emissions, such as the emissions from the consumption of water, waste business travel etc (the boundary of this scope is agreed by the organisation).

The total carbon footprint for **Armstrong Printing Group** between **February 2007** and **February 2008** was **1876 tonnes of CO₂ e**

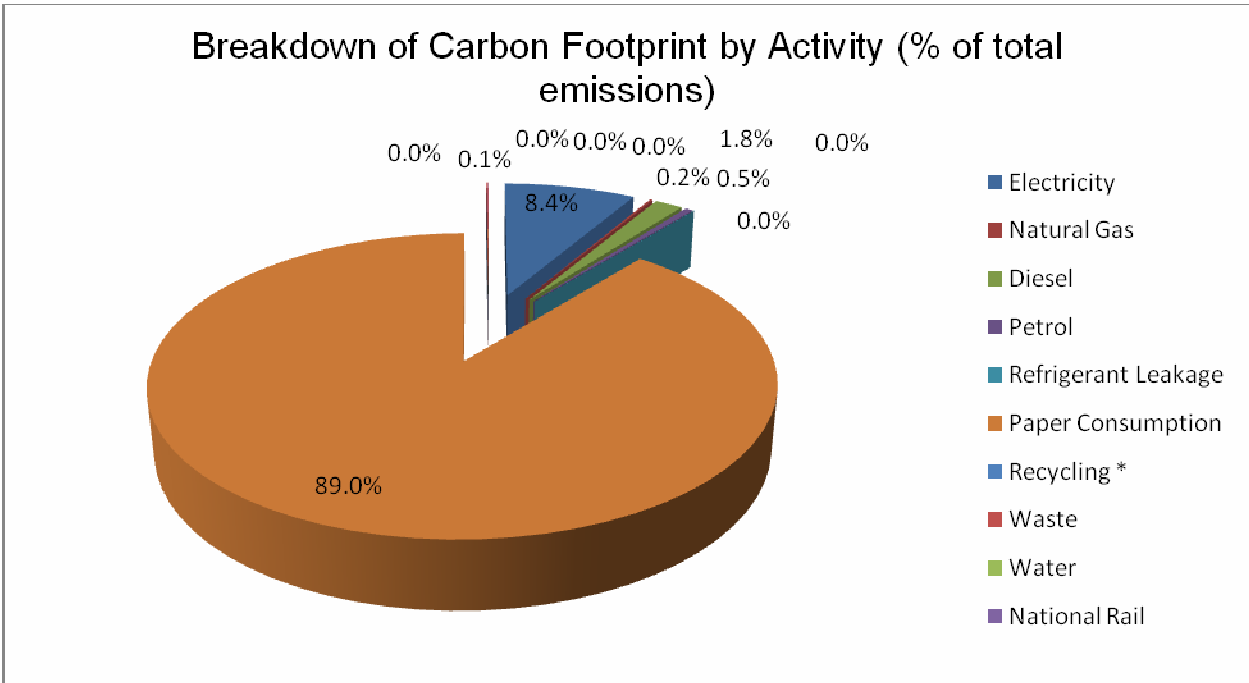


Figure 1 provides a graphical representation of the data in table 1 above. It shows that paper is the most significant element of the carbon footprint, however, it could be argued that the carbon footprint of the paper consumed would fall under the carbon footprint of the customer, and not the printer.

A credit of -5.61tonnes of CO₂ has been provided for the recycling that is taking place. Recycling diverts bio-degradable waste such as paper from landfill, where it would otherwise break down and produce the greenhouse gas methane, which is more powerful than carbon dioxide.

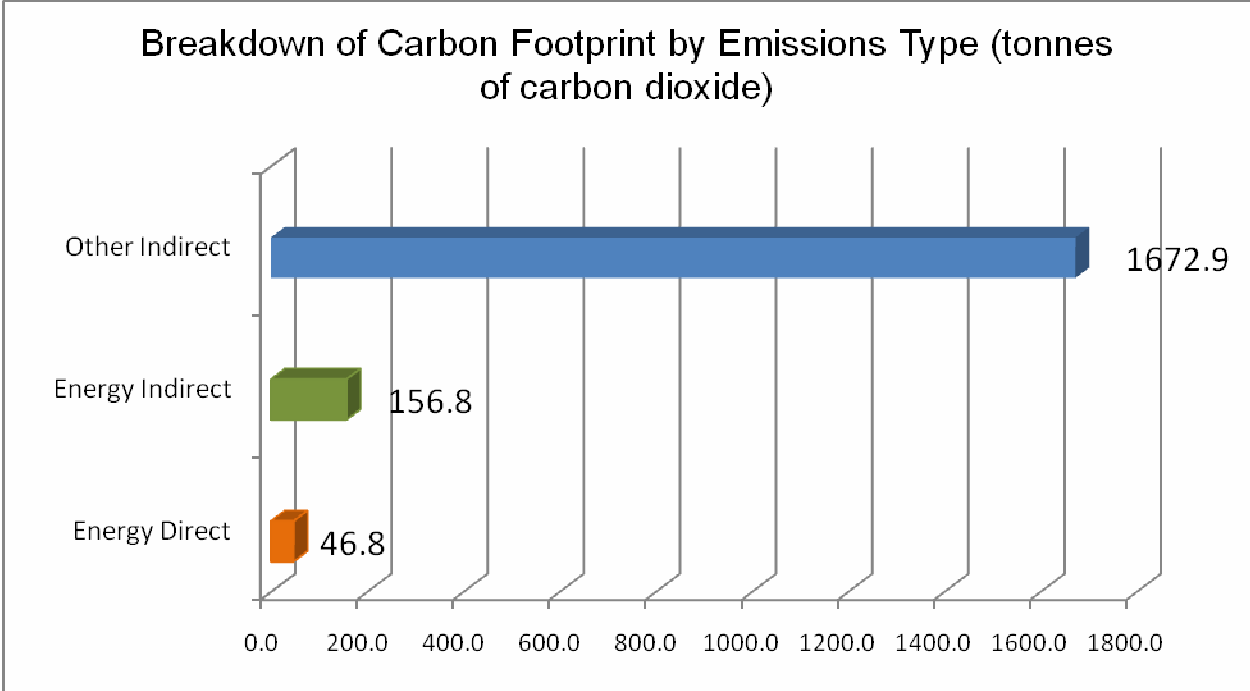


Figure 2 above shows the total tonnes of carbon dioxide broken down onto those arising from scope 1 energy direct emissions, scope 2 energy indirect emissions, and scope 3 other indirect emissions. For **Armstrong Printing Group**, the greatest contribution to the Carbon Footprint is from the other indirect emissions arising from paper usage.

A note on Benchmarks

Normally an organisation’s performance is benchmarked against similar organizations to establish a reference point for current performance. In the case of the **Armstrong Printing Group**, such a benchmark does not yet exist and using a standard alternative benchmark would not be helpful at this point. A more helpful indicator would be the proportion of the carbon footprint which is made up of unnecessary, or waste, emissions of carbon dioxide.

Action Plan

It is assumed that should Armstrong Printing Group implement all changes recommended within the office environment they could save up to 14tonnes of greenhouse gases without impacting on the business. The staff survey indicated that most staff were motivated and would be supportive of changes, although reserved about if some of them were possible – such as duplexing.

Recommendations	Action	Potential barriers
1 Replace standard office lighting with more efficient alternatives	Replacing lights with T8 Triphosphor tubes can reduce wattage by 4W per lamp	No perceived barriers to this action. There is an upfront cost for all lighting recommendations however if the Armstrong Printing Group made the recommended changes to their lighting they could save up to 7tonnes of GHGs and the upfront costs would payback in less then 2yrs
2 Install hybrid PIR in meeting rooms, Kitchen and Archive Room, Lockers	Reduction in consumption by 80% from 45 x 36W tubes	
3 Install timer on printers and photocopiers	To reduce the energy consumption of printers when not in use. To investigate timers that have override switches.	No perceived barriers however there is a need to ensure that staff know how to use the override switches should they need to.
4 Ensure monitors are switched off when not in use	Communications to all staff that switching monitors off when not in use can save up to .5tonnes of GHG	Staff are generally supportive if more communications are put in place
5 Enable energy star on PC's	The energy star feature is on all PC and can be installed easily and at no cost	No perceived barriers
6 Ensure heating and cooling systems are set consistently	The Armstrong Printing Group could reduce energy use by 16% just by setting heating and cooling systems consistently	This will require effective communications to all staff
7 Install draught proofing on exterior doors	Draught proofing doors that partition conditioned and non conditioned areas, provides better air-tightness and prevents heat loss in a naturally ventilated office. 10% energy reduction. Draught	Upfront costs will be paid back in under a year and save nearly a tonne of GHGs
8 Install pipe lagging on all exposed copper hot water pipes for basings and radiators	Reduction in 20% of energy consumption in the form of standby heat loss	Insulation of pipes can save up to 2tonnes of GHG and will pay back in under 1yr
9 Improve recycling scheme	There is room for improving the current recycling scheme and upgrading to recycle more items, therefore diverting waste into	Staff were generally supportive of action, particularly recycling more items, there maybe issue around the