



## Calculating our carbon footprint: data sources & methodology

*This document provides details about the data sources and methodology used by Penguin Random House UK to calculate our carbon footprint for 2016. Please note this is not a certified statement.*

The pulp and paper industry is the fourth largest industrial user of energy worldwide. We have a responsibility to work with our partners and suppliers to reduce our environmental impact, thinking about our entire supply chain including our paper mills, printers and distribution network.

By capturing carbon data from our paper mills, printers and distribution network we can better understand the impact we have on the environment and find ways to reduce this impact.

In order to create an accurate carbon footprint for our business we identified the following key areas of our supply chain:

1. Paper
2. Transport
3. Printers
4. Facilities
5. Business Travel

We have used the following methodology to collate and interpret our carbon data:

### 1. Paper

- Using purchase order records we identified the top 80% of paper used by Penguin Random House in 2016, considering both paper brand and volume. This figure was then scaled up to provide the total annual carbon footprint for our paper.
- Where paper is purchased directly from a paper mill we have used the mill's own data.
- Where paper is purchased indirectly we have used carbon data submitted by the paper mill to the PREPS database. PREPS is part of the Book Chain Project - a publishing industry paper sourcing tool. You can find out more here: <https://bookchainproject.com/how>.
- If a paper mill had not submitted this data to PREPS, then we have used comparable data as a proxy. We used two key components to ensure an accurate comparison: 1) whether the mill is integrated or not and 2) where the mill is located. For example we only used proxy data for papers bought from a non-integrated mill in China with other papers from non-integrated mills in China.

An integrated mill means that a pulp mill and paper mill are located on the same site.

### 2. Transport

#### **Paper: from paper mill to printer**

- Where paper is purchased directly from the paper mill, we have used the mill's own data on mode of transport and distance travelled.
- Where paper is purchased indirectly, we have made estimations based on the distance of the mill to printer and the likely mode of transport.

- We have then used the Department for Environment, Food and Rural Affairs (DEFRA) freight CO<sup>2</sup> conversion factors for the relevant year to calculate the final carbon data.

#### **Final product: from printer to warehouse**

- All data has been provided by our warehouse teams and primary transport supplier Knights of Old, and calculated based on the average CO<sup>2</sup> burden per pallet, multiplied by the number of pallets received.
- This figure also includes direct deliveries (where products are shipped from the printer direct to customer).

#### **Final product: from warehouse to retailer**

- All data has been provided by our warehouse teams who have worked with their transport supplier Knights of Old to calculate the average CO<sup>2</sup> burden per pallet and per parcel. We have then multiplied this number by the total number of pallets and parcels sent to retailers during 2016.

#### **Returns: from retailer to warehouse**

- The publishing industry operates on a sale or return basis, which means that unsold books are returned to us from retailers.
- We have calculated the carbon impact of our returns by using the same average CO<sup>2</sup> burden per pallet and per parcel, and multiplying this number by the total number of pallets and parcels returned to us from retailers.

### **3. Printers**

- Using our purchase order records we identified the printers representing 80% of Penguin Random House UK's annual print spend. This figure was then scaled up to provide the total annual carbon footprint for our print manufacturers.
- Each printer has given us their data for annual electricity, gas and oil consumption, including a record of where renewable energy sources have been used.
- To calculate Penguin Random House's share of each printer's carbon we have calculated the energy per tonne of paper used. We have then used internal records to understand how many tonnes of paper Penguin Random House UK would have used at each printer.
- We have then converted this information into carbon using DEFRA's most recent overseas electricity CO<sup>2</sup> figures (2014).

### **4. Facilities**

- Our annual electricity and gas information for both our warehouses and offices are provided in kWh, which we then converted into carbon using the annual DEFRA figures.
- For office buildings where we are a tenant among other businesses, such as our London offices at 80 Strand, we have used a proportion of the overall figures for the building based on our occupation footage.

### **5. Business Travel**

- All air travel (international), rail travel (national) and car miles (executive) used by Penguin Random House UK employees is recorded internally. We have converted this information into carbon using the annual DEFRA figures.