

Footprinting Study of the Reed Elsevier Journal 'Fuel'

Executive Summary

Reed Elsevier wished to investigate the relative carbon efficiency of providing journals through physical means compared to electronic delivery. The objective was to clearly determine the footprint of the alternative channels, and communicate results to journal readers and the wider industry. Ultimately, Reed Elsevier wished to provide robust data to inform the publishing industry on how climate change impacts may be minimised. Reed Elsevier commissioned Best Foot Forward (BFF), an Oxford based consultancy specialising in carbon and ecological footprinting, to undertake the analysis.

Fuel journal was selected for the study because its content is directly relevant, and the publishing team volunteered to participate in the project. The journal production and delivery process was broken down into five stages:

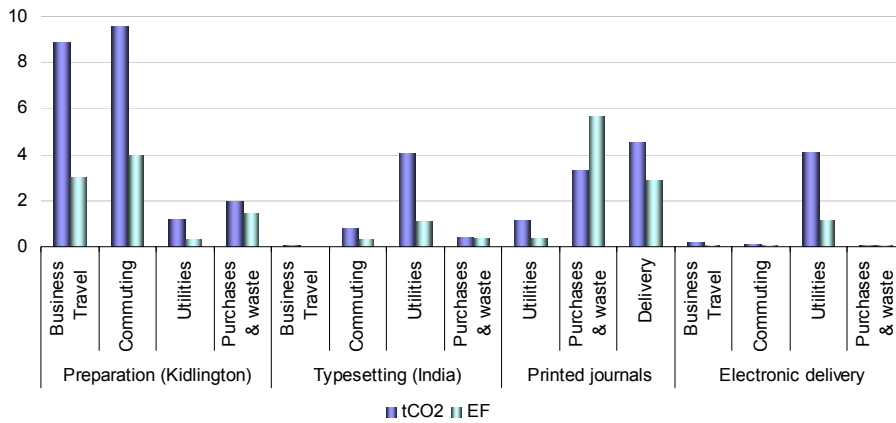
1. Preparation in Kidlington
2. Typesetting in India
3. Printing in and distribution from the UK (hard copy only)
4. Online hosting in the US (electronic only)
5. End-user reading and printing.

BFF's analytical procedure followed carbon accounting best practice whereby physical data is collected and converted into footprint results. The analysis includes both direct (utilities and fuel use) and indirect (materials and waste) impacts to provide a comprehensive account of the footprints of producing and delivering journals. Results are presented in two robust and widely recognised sustainability metrics: the carbon footprint (reported in tonnes of carbon dioxide) and ecological footprint (in global hectares).

It is most appropriate to consider the analysis in two sections: the production stages (1-4) and end-user behaviour (stage 5). The overall impacts of production need to be determined to be able to compare the efficiency of the two channels of Journal delivery.

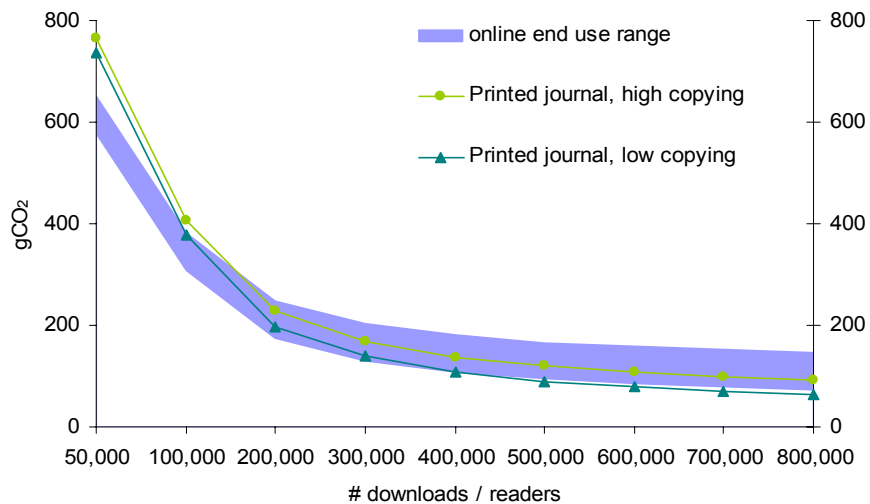
The production stage of the analysis required site footprints for the three Reed Elsevier sites, and a production line footprint for printing. The site footprints consisted of components including utilities, business travel, commuting, materials and waste. The product footprint covered printer material inputs, printing energy and the distances and modes of distribution. For all of these discrete footprint outputs, impacts were allocated to *Fuel* based on a proportion of all pages produced.

The analysis was conducted for successive years 2006 and 2007. The overall impact of producing *Fuel* in 2007 was a carbon footprint of just over 40 tonnes of carbon dioxide, and an ecological footprint of almost 21 global hectares. The carbon and ecological footprint impacts can be disaggregated by production stage, and by individual components as shown below:



The results show that the largest impacts came from staff commuting and business travel for Kidlington (UK), where the majority of the *Fuel* staff work. Other significant impacts came from the utilities for typesetting, paper for printing, delivering hard copies and energy for hosting online content.

The second phase of the project considered end user behaviour which determines the footprint on a 'per journal' basis. There were a number of variables to consider, such as time spent reading onscreen, printing behaviour and photocopying of hard copies. BFF worked closely with Reed Elsevier to investigate user behaviour, but our research found limited reliable data on the subject. Consequently, 'low impact' and 'high impact' behaviours were modelled to gauge the relative effect of end user actions on overall carbon emissions. The figure below summarises results, and shows how user behaviour does significantly affect the footprints of alternative delivery channels. Based upon the data available at this time, there is little significant difference in the impacts between viewing the product online or in a physical format.



There have been a number of valuable outcomes from the project. For Reed Elsevier, the study has identified the relative impacts of different components of three of their sites and targeted strategies are already underway to reduce specific impacts. The study's objective - to determine which delivery mode is most carbon efficient - has been shown to ultimately depend on the behaviour of journal readers. Reed Elsevier intend to pursue this finding in 2008 to research typical reader behaviours, and also provide a communications tool to inform readers on how their behaviour affects the footprint result. Reed Elsevier envisage that this tool could be shared with the wider industry, and facilitate improved reader behaviour to achieve significant overall carbon savings.

If you would like more information about the 'Fuel' footprint exercise, please contact Mark.Gough@reedelsevier.com.