

Colour Me Carbon

What's the hottest topic in print these days? Judging by the spate of recent announcements, it's carbon calculators. They're everywhere, from Google's calculator and those of NGOs such as the Carbon Trust and Envirowise in the UK, through to energy companies the world round. Even book publishers are getting into the act. For instance, Finnish book printer WS Bookwell's ecocalculator calculates CO₂ emissions and environmental impacts based on materials alternatives, production data and print run specifications.

It's one of many such initiatives and reflects the growing awareness in the printing and publishing industries to understand and accurately quantify environmental impacts. And therein lies the problem with the growing spate: there are so many carbon footprinting initiatives, that it's impossible to use them without wondering if you've chosen the best option for your business.

Nor are the printing and publishing industries alone in this problem: carbon calculators are proliferating everywhere from energy companies to governments to lifestyle gurus. In complex supply chains, wherein different components use different footprinting models, there is no single, standard way to measure accurately and reliably the total carbon footprint of a given product. Basically it's a mess.

What is a Carbon Calculator?

There are many definitions of what constitutes a carbon calculator, mostly shaped by the interests of the people coming up with the definition. A calculator works out the amount of greenhouse gases (GHGs) a given activity produces, expressing it in units of CO₂. In the graphic arts this could, for instance, be the printing press, paper, electronic delivery, proofing, finishing and distribution. But shouldn't it also include indirect emissions such as the manufacturing processes for the press, paper, computers, and so on?

The basics of what to include are fairly straightforward: energy, transportation and raw materials, but for the most part this is generic not specific. What should or

should not be included in the calculation is part of the problem and different organisations take different approaches. Germany's bvdm, for instance, want to avoid, determine and compensate for emissions and include energy and emissions calculations for some,

This article is part of the Verdigris series of stories about understanding the environmental impact of print. The Verdigris project is supported by Agfa Graphics, Canon Europe, Digital Dots, drupa, Fujifilm, HP, Kodak, Ricoh, Océ and Unity Publishing.

but not yet all, press technologies. The UK's Periodical Publishers' Association wants to provide added value to membership and won't share the details of its calculator. Finnish paper manufacturer UPM hopes to assist its customers to estimate their own carbon footprint using embedded emissions for the paper component and general guidelines for the rest. None of these calculators are supply-chain specific.

Who is Doing What?

This huge diversity renders a complete overview of all of the carbon calculators both unmanageable and meaningless, because like for like comparisons are so difficult. It's clear that most carbon calculators have been developed to meet the needs of specific interests.

Paper manufacturers such as M-real and UPM for example, calculate carbon footprints for paper products based on the ten elements of the Confederation of European Paper Industries' (CEPI) Carbon Footprint Framework for Paper and Board Products. This uses calculations based on annual averages of specific paper machine lines. The numbers refer to fossil CO₂ emissions, which are the most important GHG emissions for the paper industry, used in conjunction with information on product composition and different environmental parameters.

CEPI's Paper Profile framework is a product declaration for paper buyers that presents the details of the environmental parameters for a given paper product. Launched in November 2007, it covers the carbon in forest products, carbon sequestration in forests and GHG emissions from forest product manufacturing

facilities, fibre production and those associated with producing other raw materials and fuels including purchased electricity, steam and heat. This framework covers emissions related to transport of the product, and with product use, recovery and recycling. It also covers avoided emissions which, rather like the sequestration ideas, could be somewhat subjective.

At the other extreme, HP has developed a carbon footprint calculator for its inkjet and laser-based office printers and recently announced expanded functionality to support its HP Designjet printers.

The calculator generates estimates of energy consumption during use of a printer, emissions of carbon dioxide from production of the electricity required to run it, and carbon dioxide emissions from production of estimated volumes



The recent meeting of the TC 130 group in Beijing has set up a new task force to use PAS 2050/14067 as the basis for a standard carbon footprinting methodology for print products.

of paper consumed during printing. As is the case with many calculators, HP relies on embedded emissions, CO2 estimates for energy and paper production. Currently there isn't much alternative other than to make use of data and the models generated by third parties. However, the printing and media industries really need to have absolutes, which requires coordination throughout both the primary and subsidiary supply chains.

Throughout the world industry associations are aware of the need to do something to make print products environmentally accountable and there are various consulting organisations ready to lend a hand. For instance, Swedish developer Innventia helped the UK's Periodical

Publishers' Association develop its carbon calculator. GA, the Danish printers' federation, plans to launch a CO2 calculator for printing plants and printed products and will encourage uptake throughout Scandinavia and develop an English version for everywhere else.

Crying Out for Commonality

All this work really needs a common framework and fortunately there are efforts afoot to provide just such a thing. These efforts will be coordinated across interests and nations, hopefully before it all gets completely out of hand. The ISO committee TC130, responsible for graphic technologies, is looking at the same landscape as many other organisations, and has been considering developing a standard metrology for the printing industry.

The PrintCity Alliance has also initiated research into carbon footprinting and energy efficiency in printing and packaging. The alliance is working with Intergraf, the European association of printing associations, with a view to inviting other European organisations to contribute and to produce a best practice guide in 2010. They want to analyse and give guidance on how to measure and use carbon footprints. This is wonderfully vague, but it could tie in well with the ISO efforts.

PAS 2050 & ISO 14067

A number of carbon calculators, including some of those mentioned above, are based on PAS 2050. This is a methodology for calculating carbon footprints for product footprinting, rather than organisational footprinting or environmental management, which is the preserve of standards such as 14001. PAS 2050 uses the principles of Product Category Rules (PCR) that define the criteria for a specific product category and set out the parameters for which environmental assessments can be made. There are PCR definitions for pulp, paper and some paper products. This specification is also the basis for a standard due to be published in March 2011, ISO 14067.

ISO14067 specifies the requirements for the quantification and communication of GHG emissions associated with the whole lifecycle or specific stages of the lifecycle of goods and services. It is basically an international version

Vorgaben für Materialien und Lieferentfernungen

Hier können Sie Vorgaben für Materialien und Lieferentfernungen hinterlegen. Diese Daten vereinfachen die Bilanzerstellung und werden anstatt der allgemeinen Vorgaben des Systems verwendet.

Requirements for **Paper - Sheetfeeding** to process **Paper - Sheetfeeding** of 4

Art	Bezeichnung	Gewicht	Format	CO ₂ -Äquiv.	Lieferant
Sheet Coated	Chroma350	350 g/m ²	70 x 100 cm	kg/kg (Optional)	Lieferant musterst... Lieferant hinzufügen
Sheet Coated	Matt200g/2	200 g/m ²	70 x 100 cm	0.6 kg/kg (Optional)	Lieferant musterst... Lieferant hinzufügen
Sheet Coated		115 g/m ²	70 x 100 cm	kg/kg (Optional)	Lieferant musterst... Lieferant hinzufügen
Sheet Coated		135 g/m ²	50 x 70 cm	kg/kg (Optional)	Lieferant musterst... Lieferant hinzufügen

Neue Vorgabe hinzufügen

Art	Bezeichnung	Gewicht	Format	CO ₂ -Äquiv.	Lieferant
Please choose		g/m ²	x cm	kg/kg (Optional)	Please choose Lieferant hinzufügen



The German bvd m association has developed its own carbon calculator which includes some, but not all, press technologies.

of PAS 2050. The objective with 14067 is to promote the monitoring, reporting and tracking of progress in the mitigation of GHG emissions. The standard builds on existing environmental management, Life Cycle Analysis (LCA) guidance and assessment standards and relevant carbon footprinting programmes and initiatives.

TC130, best known for ISO12647 and all its parts, is now working on carbon footprinting and ways that printers can evaluate their environmental impact. The idea is to develop an international standard that can be used by printing and related companies worldwide, and that can be accredited. At a recent meeting in Beijing it was resolved to set up an ISO/TC130 task force to investigate using PAS 2050 and ISO14067 as the basis for a standard carbon footprinting methodology for print products. A liaison officer has been appointed to work with the people developing 14067, sitting on both TC 130 and TC 207 committees.

The goal is to create a carbon footprinting and environmental impact management framework that will be useful throughout the print media industry, independent of sector or application of graphic technology. This work will ultimately provide the foundation for measuring carbon units accurately. This will then allow printers and publishers to participate in the emerging market for emissions trading.

Work begins now, so volunteers will be keenly welcomed. TC130 is also liaising with TC207, the committee responsible for environmental standards, including 14001. This is a key part of TC130's work because TC207 is working on a universal framework for carbon footprinting and environmental impact assessment for products.

In the meantime, carbon calculation, by whatever means should be encouraged as much as possible. At this time

it really doesn't matter how a business does it, as long as businesses recognise the need to do it and start learning how.

Laurel Brunner 