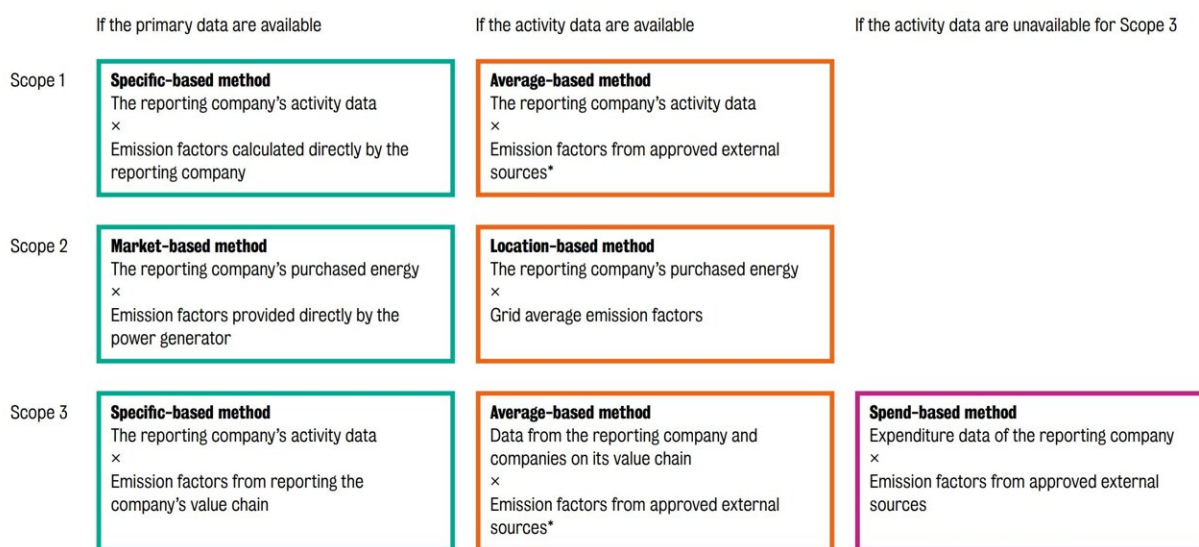


# New research shows how companies could be gaming their reported greenhouse gas emissions

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\*External data sources include published databases, government statistics, and literature studies

- Green represents the highest level of anticipated accuracy
- Orange represents the mid-level of anticipated accuracy
- Pink represents the lowest level of anticipated accuracy

Hierarchy of calculation methods under the GHG Protocol. Credit: *Emissions gaming?* (2023).

New research by academics at King's Business School has shown that companies are able to "game" their reported greenhouse gas emissions to an extent that is both financially and environmentally material because

of the discretion they have around the methods and datasets they use in their calculations.

They found that by choosing a more flattering dataset and method as the basis for their emissions calculations, companies could engineer a reported emissions total between 4.6 and 6.7 times smaller than the total they would be required to report if they used the least flattering dataset and method.

## **How do organizations calculate their greenhouse gas emissions?**

Businesses use emissions factor [datasets](#) to help them to calculate the CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions generated by each aspect of their business activities. The process involves multiplying each unit of activity by the relevant emission conversion factor and its scientifically understood [global warming](#) potential.

Three main global emissions factor datasets, as well as multiple national datasets, are approved under the United Nations Framework Convention on Climate Change. These are; the UK Department for Environment, Food and Rural Areas (DEFRA) database, the US Environmental Protection Agency (US EPA) and EXIOBASE, used by the European Union and multiple countries worldwide.

## **How can this be gamed?**

There are currently no explicit rules requiring companies to disclose the datasets they use to calculate their CO<sub>2</sub>e emissions. The King's Business School team, comprising; David Aikman, Yao Dong, Evangelos Drellias, Swarali Havaladar, Marc Lepere and Matthias Nilsson, set out to understand the difference made by a company's choice of dataset and

methods.

Their [initial analysis](#) found that the 'emissions factors' in the UK DEFRA dataset were on average 10% lower than those in the US-EPA dataset.

The team then took activity data from three real companies and prepared their CO<sub>2</sub>e emissions reporting based on the UK DEFRA and US EPA datasets. The case study companies' business models resulted in emissions produced in variety of different ways, including manufacturing and assembling products, transport, buying electricity and business travel. Each type of activity falls into one of three different "Scopes" for calculating emissions set out in the Greenhouse Gas protocol:

- Scope 1 [greenhouse gas emissions](#) are the direct emissions from sources that are controlled or owned by the company e.g. the quantity of fuels burned on-site or the quantity of fuel used in company-owned vehicles and equipment.
- Scope 2 emissions arise from the generation of electricity bought and consumed by the company.
- Scope 3 includes all other indirect emissions from a company's activities, from the emissions from the goods and services it buys, to transport, waste processing, business travel and staff commuting. Where insufficient granular detail is available, businesses may calculate their emissions based on their spending on a type of activity.

## Findings

The researchers found that "Scope 3" calculations varied the most when a different dataset was used, especially when they were based on the 'spend based' method of calculation.

Many companies rely on this method because the data needed is so readily available to them. Overall, the researchers found that, for the companies in the study, switching from the UK DEFRA to the US EPA dataset would have increased their reported CO<sub>2</sub>e emissions by an average 5.4%. Research implies that if the companies were listed, this would result in a 1.9% hit to their share price.

"This matters because if [business](#) can't, or won't, calculate CO<sub>2</sub>e emissions accurately, then we can't plot a proper path to keeping the global temperature at or below the 1.5C above pre-industrial levels that scientists see as a tipping point," says Dr. Marc Lepere, Executive Education Sustainability Lead, King's Business school and Founder & Chief Scientific Officer of Omnevue.

## **Making emissions calculations more reliable**

To address the potential gaming of CO<sub>2</sub>e reporting, the researchers make five policy recommendations:

1. Regulate preparers of GHG emissions calculations and require external audit.
2. Require reporting entities to disclose the proportion of all scopes that are covered and assured.
3. Require reporting entities to disclose the methods and datasets used in their emissions calculations up front in their accounts and to restate [historical data](#) to aid comparison.
4. Require reporting entities to calculate and disclose emissions using datasets that are representative of where the emissions producing activity takes place. Reporting entities should also report against different emission factor datasets, including both local and global.
5. National agencies should investigate categories of emissions factors with large variances across datasets.

"Increasingly large sums of capital are being deployed either in line with Environmental, Social and Governance criteria or with the explicit aim of mitigating climate change. Investment managers need assurance that the data they are basing their decisions on is as robust and transparent as it can be. At the moment, it clearly isn't," says Professor David Aikman, Professor of Finance (Practice) and Director of the Qatar Centre for Global Banking & Finance.

**More information:** Report: [www.kcl.ac.uk/business/assets/ ...emissions-gaming.pdf](http://www.kcl.ac.uk/business/assets/...emissions-gaming.pdf)

Provided by King's College London

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