# PROJECT: ANALYZING INDUSTRY CARBON EMISSIONS

Photo by Maxim Tolchinskiy on Unsplash

When factoring heat generation required for the manufacturing and transportation of products, *Greenhouse gas emissions attributable to products, from food to sneakers to appliances, make up more than 75% of global emissions.*
(`Source: The Carbon Catalogue https://www.nature.com/articles/s41597-022-01178-9`)

Our data, which is publicly available on nature.com, contains product carbon footprints (PCFs) for various companies. PCFs are the greenhouse gas emissions attributable to a given product, measured in $CO_2$ (carbon dioxide equivalent).

This data is stored in a PostgreSQL database containing one table, `product_emissions`, which looks at PCFs by product as well as the stage of production that these emissions occurred. Here's a snapshot of what `product_emissions` contains in each column:

`product_emissions`

| field | data type |
|---|---|
| `id` | `VARCHAR` |
| `year` | `INT` |

| field | data type |
|---|---|
| product_name | VARCHAR |
| company | VARCHAR |
| country | VARCHAR |
| industry_group | VARCHAR |
| weight_kg | NUMERIC |
| carbon_footprint_pcf | NUMERIC |
| upstream_percent_total_pcf | VARCHAR |
| operations_percent_total_pcf | VARCHAR |
| downstream_percent_total_pcf | VARCHAR |

You'll use this data to examine the carbon footprint of each industry in the dataset!

Projects Data DataFrame as `carbon_emissions_by_industry`

```
-- Update your query here
SELECT industry_group, COUNT(DISTINCT company) AS num_companies, ROUND(SUM(carbon_footprint_pcf),1) AS
total_industry_footprint
FROM product_emissions
WHERE year = 2017
GROUP BY industry_group
ORDER BY total_industry_footprint DESC;
```

| | industry_group | num_comp... | total_industry... |
|---|---|---|---|
| 0 | Materials | 3 | 107129 |
| 1 | Capital Goods | 2 | 94942.7 |
| 2 | Technology Hardware & Equipment | 4 | 21865.1 |
| 3 | Food, Beverage & Tobacco | 1 | 3161.5 |
| 4 | Commercial & Professional Services | 1 | 740.6 |
| 5 | Software & Services | 1 | 690 |

Rows: 6 Expand