# Apple’s Emission Goals and Dataset

In 2020, after announcing their corporate operations were officially carbon neutral, Apple pledged to make their products carbon neutral by 2030.

To achieve this goal, they set their emissions for 2015 (38.4 million metric tons CO2e) as the baseline and will aim to reduce them by 75% by 2030.

The remaining 25% of gross emissions (9.6 million metric tons CO2e) will be removed using carbon offsets, bringing the net emissions to 0.

For the **Maven Environmental Challenge**, you'll be working as an independent journalist and data viz enthusiast.

Your task is to use the data provided by Apple in their Environmental Progress Reports to **visualize their progress towards becoming carbon neutral in 2030**.

## Datasets

### Greenhouse gas emissions

|  |  |
| --- | --- |
| Field | Description |
| Fiscal Year | Apple's fiscal calendar starts on the last Sunday of September and is 364 days long |
| Category | Emissions are divided into two categories: corporate emissions and product life cycle emissions |
| Type | There are two types of emissions data included: gross emissions (which add to the carbon footprint) and carbon removals (which subtract from the carbon footprint) |
| Scope | There are three scopes: direct scope 1 emissions; indirect scope 2 emissions from purchased electricity, steam, heating, and cooling; and indirect scope 3 emissions from purchased goods and services, transportation and distribution, business travel, employee commute, product use, and end of life |
| Description | The source of the greenhouse gas emissions |
| Emissions | Greenhouse gas emissions (metric tons CO2e) |

\*Apple’s greenhouse gas emissions are calculated using the World Resources Institute Greenhouse Gas Protocol methodology for calculating market-based emissions.

### Carbon footprint by product

|  |  |
| --- | --- |
| Field | Description |
| Release Year | Year the product was released |
| Product | Product name |
| Baseline Storage | Lowest storage option |
| Carbon Footprint | Greenhouse gas emissions from the product life cycle (kg CO2e) |

### Normalizing factors

|  |  |
| --- | --- |
| Field | Description |
| Fiscal Year | Figures are as of the end of the fiscal year |
| Revenue | Net sales (in millions, US$) |
| Market Capitalization | Value of the company (in billions, US$) |
| Employees | Number of full-time equivalent employees |

### Carbon footprint by product details

|  |  |
| --- | --- |
| Field | Description |
| Released For Fiscal Year | Fiscal year for which the product was released |
| Release Year | Year the product was released |
| Release date | Date the product was released |
| Product Category | Product name |
| Product |  |
| Configuration |  |
| Generation |  |
| Series |  |
| Model |  |
| Storage | Storage option (in GB) |
| Carbon Footprint |  |
| Production | % of estimated greenhouse gas emissions by category |
| Product use | % of estimated greenhouse gas emissions by category |
| Transport | % of estimated greenhouse gas emissions by category |
| End-of-life processing | % of estimated greenhouse gas emissions by category |

### Avoided Emissions (Renewable electricity)

|  |  |
| --- | --- |
| Field | Description |
| Year | Apple's fiscal calendar starts on the last Sunday of September and is 364 days long |
| Emissions Avoided | (in metric tons CO2e) avoided because of switching to renewable electricity |

### Energy and carbon footprint (corporate facilities) by category

## Understanding Business and Data/Datasets for Analysis

### Corporate Emissions:

**Scope 1** emissions - all direct GHG emissions

* Natural gas, diesel, propane
* Fleet vehicles
* Other emissions - Emissions from R&D processes and refrigerant leaks

**Scope 2** emissions\*\* – indirect GHG emissions

Market based.

* Electricity
* Steam, heating, cooling – [emissions from the purchase of district heating\*, chilled water, and steam]

\* District energy is an innovative energy solution that involves the production of thermal energy at a central facility and distribution to buildings via an underground piping network.

\*\* estimate the life cycle emissions associated with our use of renewable electricity for our corporate facilities to be about 60,000 metric tons CO2e. We do not currently account for these emissions in our carbon footprint, due to the poor quality of this data.

**Scope 3 -** emissions from product life cycle, suppliers, and product users – value and supply chain

Corporate

* Business travel
* Employee Commute
* Upstream fuel
* Work from home (Market Based)
* Transmission and distribution loss (market-based)
* Third-party cloud (market-based)

Product

* Manufacturing (purchased goods and services)
* Product transportation (upstream and downstream)
* Product use (use of sold products)
* End-of-life processing

Building emissions refers to emissions from natural gas and electricity at corporate offices, data centers, and retail stores

### Avoided Emissions:

Scope 2 emissions avoided - Corporate facilities – Renewable electricity

### Carbon Offsets:

Corporate carbon offsets

Product carbon offsets

### Product- wise carbon emissions

Estimated emissions are calculated in accordance with guidelines and requirements as specified by ISO 14040 and ISO 14044. Calculation includes emissions for the following life-cycle phases contributing to Global Warming Potential (GWP 100 years) in CO2 equivalency factors (CO2e):

Production

Transport

Product use

End-of-life processing

### Normalizing Factors

Normalizing factors in emissions refer to the factors or variables used to adjust or standardize emissions data to make meaningful comparisons between different entities, periods, or situations. Emissions data can vary significantly based on various factors like location, scale, and economic activities. Normalizing factors help in comparing emissions fairly, taking into account these variations.

Net sales can be used as a normalizing factor in certain contexts, particularly when you want to assess the efficiency or performance of a business or industry in relation to its sales revenue. Normalizing by net sales helps provide insights into the relationship between emissions and economic activity.

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Business Performance and Trend Analysis