University of Reading

SUSTAINABILITY ESSENTIALS

No. 4 – What are carbon emissions and greenhouse gases?

What does 'carbon emissions' mean?

The term carbon emissions is regularly used throughout the media, academia, the environmental and sustainability sectors but what does it mean?

Carbon is a very abundant element and is considered to be the building block of life on Earth. It is found in the air we breathe, in the food we eat, the products we buy and we ourselves are made of carbon.

Carbon emissions focuses specifically on carbon dioxide (CO_2), which is formed when an atom of carbon joins with two atoms of oxygen. There are many ways that CO_2 is naturally released into the atmosphere – the exchange between the oceans and the atmosphere, through respiration and when plants and animals decompose. These processes are managed by natural cycles that keep the emissions of CO_2 in balance.

What about other greenhouse gases?

Greenhouse gases are the gases in the Earth's atmosphere that trap heat. They occur naturally and without them, the Earth's average surface temperature would be -18℃. CO_2 is the most abundant, followed by methane and nitrous oxide.

The impact of human activity

Human activity, primarily in the form of burning huge amounts of fossil fuels, has resulted in large increases in the amount of CO_2 and other greenhouse gases present in Earth's atmosphere. This is unbalancing the natural cycles of our planet and causing our climate to change.

The last 8 years have been the warmest on record and the last 4 decades has each been warmer than the preceding one.

What is the University of Reading doing?

The University has committed to reducing our greenhouse gases to as little as possible and achieving Net Zero emissions by 2030.

In 2016 we met our 35% carbon reduction target (compared to the 2008/09 baseline). In July 2023 we achieved a 61% reduction, which far exceeds our July 2024 target of 57.5%

Visit our Policies, Strategies and Reports and carbon reduction projects page for more information.

Did you know?

The Earth has warmed 1.2℃ more than was recorded in pre industrial times (circa 1850).