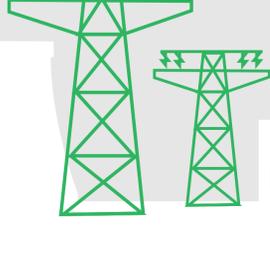


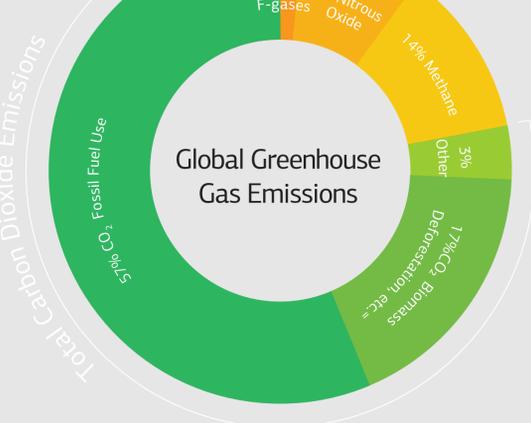
What is Climate and Energy?

The burning of carbon-based fuels for energy has greatly increased concentrations of atmospheric carbon dioxide (CO₂) and other greenhouse gases. The accumulation of these gases in the atmosphere is changing the Earth's climate and is dangerously affecting human health and ecosystems. Three indicators in the EPI measure countries' abilities to reduce carbon intensity.



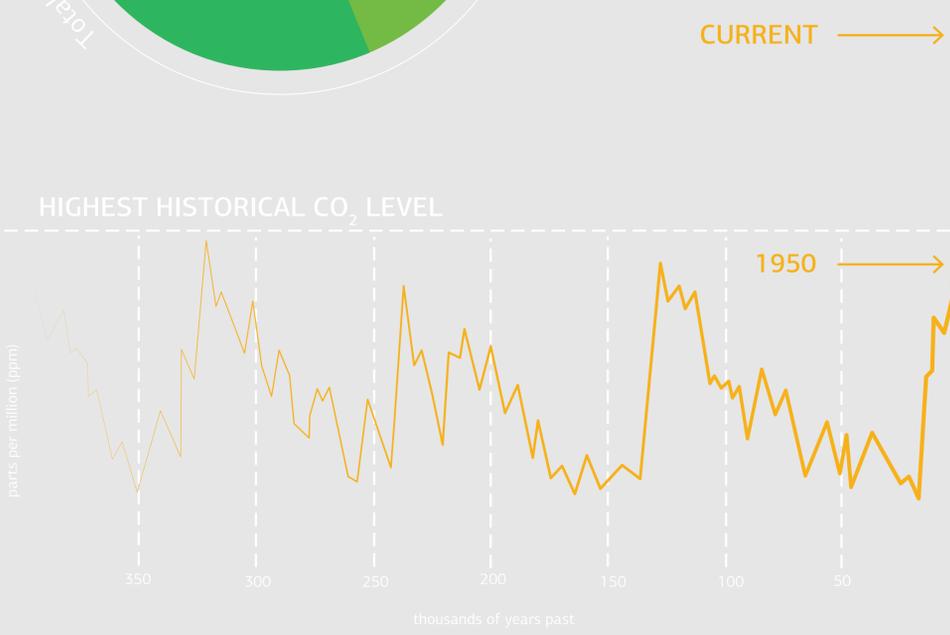
What generates CO₂?

CO₂ is the predominant greenhouse gas. While emissions have a variety of natural sources, the steep increase since the Industrial Revolution is the result of human activity.



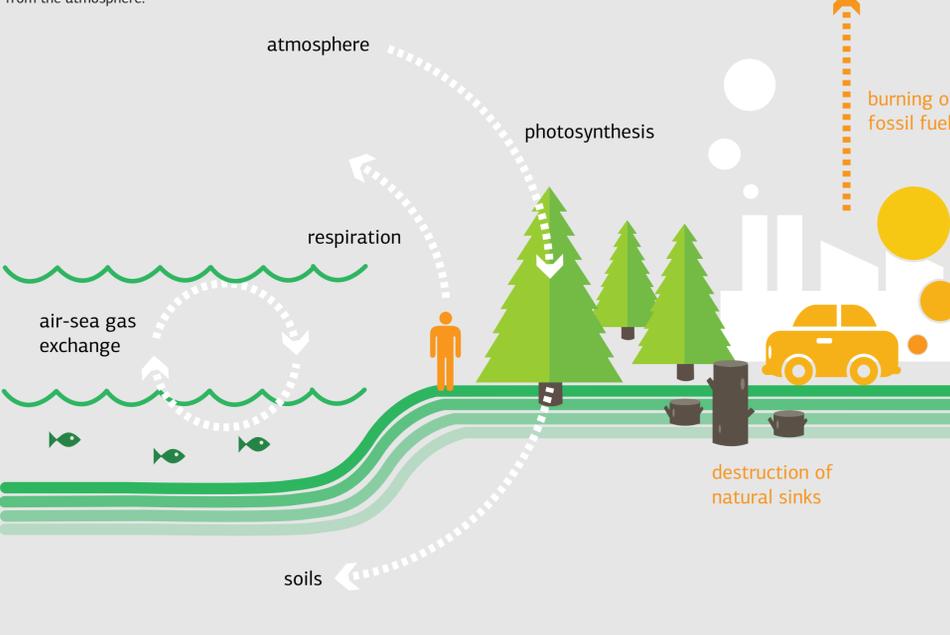
Carbon Dioxide Concentration

Although fluctuations in concentration of atmospheric CO₂ occur naturally between glacial cycles, the present levels appear to be the highest in the last 800,000 years.



Earth's Carbon Cycle

CO₂ is naturally present in the atmosphere, contributing to the circulation of carbon between organisms, the atmosphere, oceans, and soils. Adding carbon is not the only way human activities have altered this carbon cycle. The destruction of carbon sinks – like forests and wetlands – have diminished the ability of natural systems to remove carbon from the atmosphere.



How do we know?

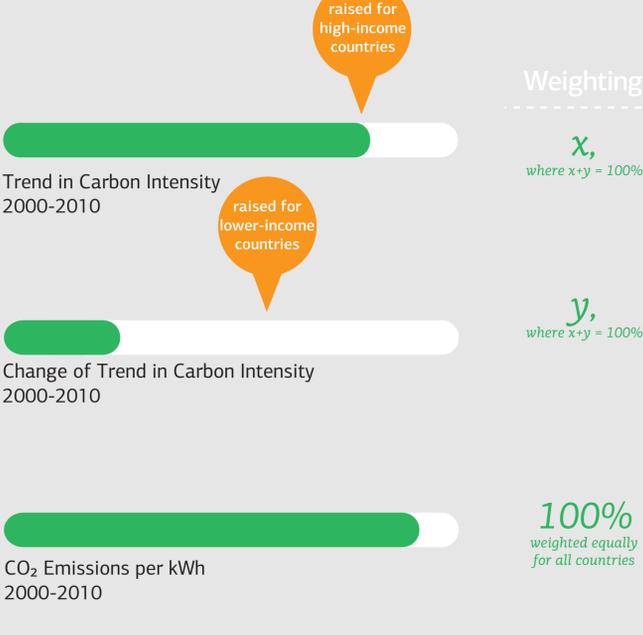
Whereas other indicator scores reflect the degree to which a target has been met, there are no globally agreed-upon targets for CO₂ reductions. Therefore, the EPI Climate and Energy indicators should not be interpreted as a proximity-to-target, but rather a relative position globally. The EPI indicators for Climate and Energy are weighted depending on a country's level of economic development. Least-developed countries (LDCs) are not scored on emissions indicators, as their historic contributions of atmospheric CO₂ are insignificant.

SCORING

The score for this indicator is based on three trends: Trend in Carbon Intensity, Change of Trend in Carbon Intensity, and Trend in CO₂ Emissions per kWh.

The Trend in Carbon Intensity and Change of Trend in Carbon Intensity indicators are weighted according to a country's GDP. Wealthier countries have scores weighted more on Trend in Carbon Intensity (x), while scores for lower-income countries are weighted more on Change of Trend in Carbon Intensity (y).

Trend in CO₂ emissions per kWh scores countries based on the change in the carbon intensity of the average unit of electricity and heat produced. A few top performers are scored solely on their CO₂ emissions per kWh for the year 2010, as they already perform well enough that there is little room for additional improvement.



WHY WEIGHT THE INDICATORS?

Climate change is largely the legacy of developed and industrialized countries. These include OECD states in Europe, as well as the U.S., Japan, Australia, and Canada. Expectations under international climate agreements, including the Kyoto Protocol, are that these countries will reduce their emissions to a baseline (i.e., 1990 levels) by a certain target date. We score this group based on their efforts to reduce emissions.

Developing countries, particularly major emerging economies like China and India, are or will be responsible for the majority of future emissions. Still, nobody expects these countries to deliberately stop growing. It is vital that they at least slow the rate at which carbon intensity grows. Our scores for this group emphasize the need for slowed growth in intensity. Countries that slow their rates of emissions growth are scored better than countries that remain steady or are increasing emissions more rapidly than at earlier times.



ACCESS TO ENERGY

For LDCs, emissions are simply not as important as transforming energy to more sustainable and accessible forms of energy. No score is given to LDCs for Climate and Energy. Instead, an indicator showing Access to Electricity is presented but not calculated in the overall EPI score.

Why does it matter?

Global temperature rise as a result of climate change has been shown to be correlated with a number of natural phenomena, including:

