Energy “transition” or “addition”?
Taking account of a changing energy system

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Globally, the world has experienced a series of energy “additions”

Global CO₂ has grown as the sum of growth in population, GDP per capita, energy intensity, and CO₂ intensity.

Source: RFF Global Energy Outlook (www.rff.org/geo) based on historical data from the International Energy Agency

Note: Real GDP in PPP terms
In the US, lower energy intensity and a cleaner energy mix reduced emissions over the past decade.

Source: RFF Global Energy Outlook (www.rff.org/geo) based on historical data from the International Energy Agency

Note: Real GDP in PPP terms
European CO$_2$ intensity has been falling over an even longer period, driving continued emission reductions.

Source: RFF Global Energy Outlook (www.rff.org/geo) based on historical data from the International Energy Agency

Note: Real GDP in PPP terms
Yet, in China, rapid economic growth and a coal-heavy energy mix have driven emissions upward.

Source: RFF Global Energy Outlook (www.rff.org/geo) based on historical data from the International Energy Agency

Note: Real GDP in PPP terms