



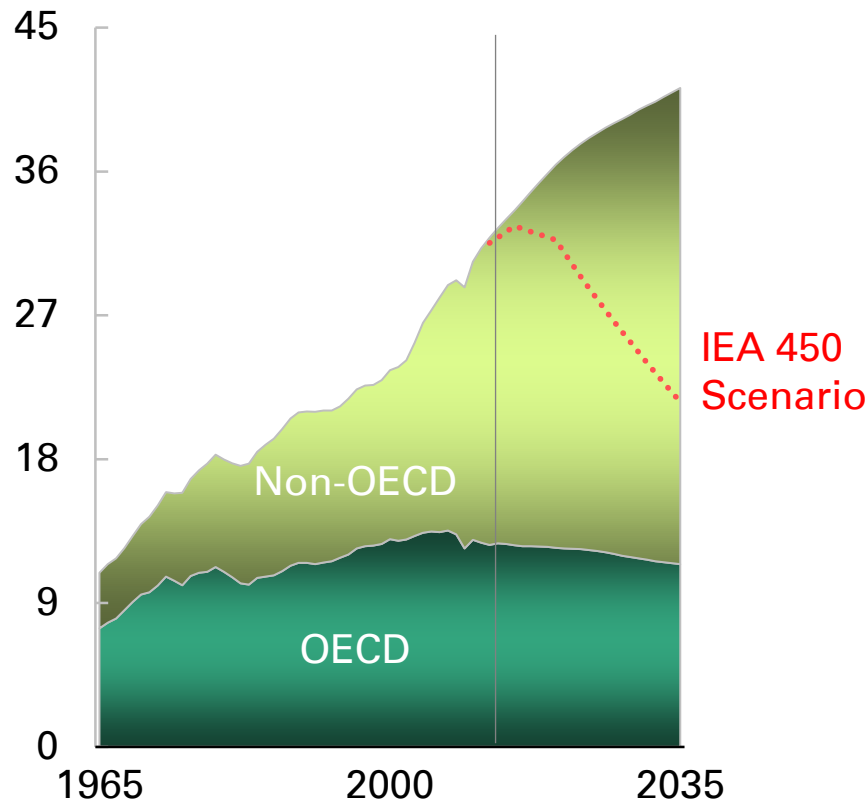
Research on Energy Security

Kaushik Deb, Economist, BP
12 March 2014, New Delhi

CO₂ emissions from energy use continue to rise

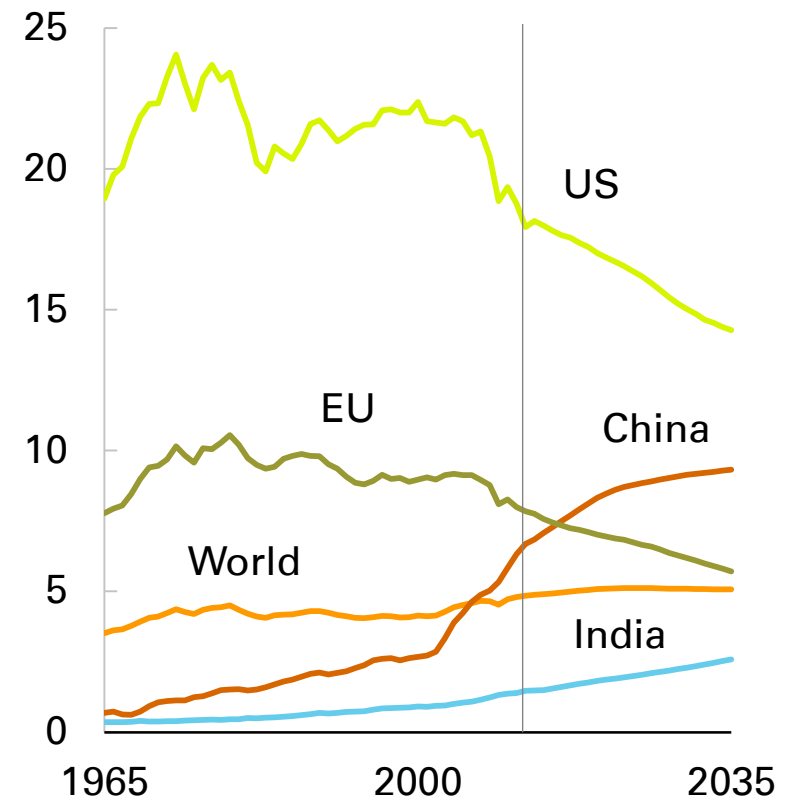
Emissions by region

Billion tonnes CO₂



Emissions per capita

Tonnes CO₂

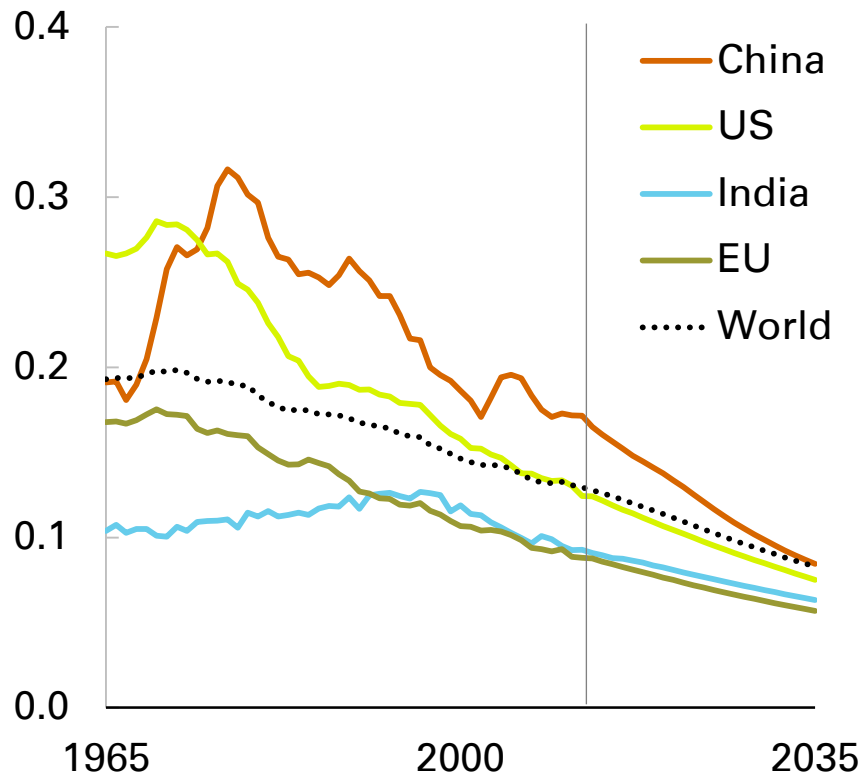




Energy intensity and carbon intensity follow different patterns

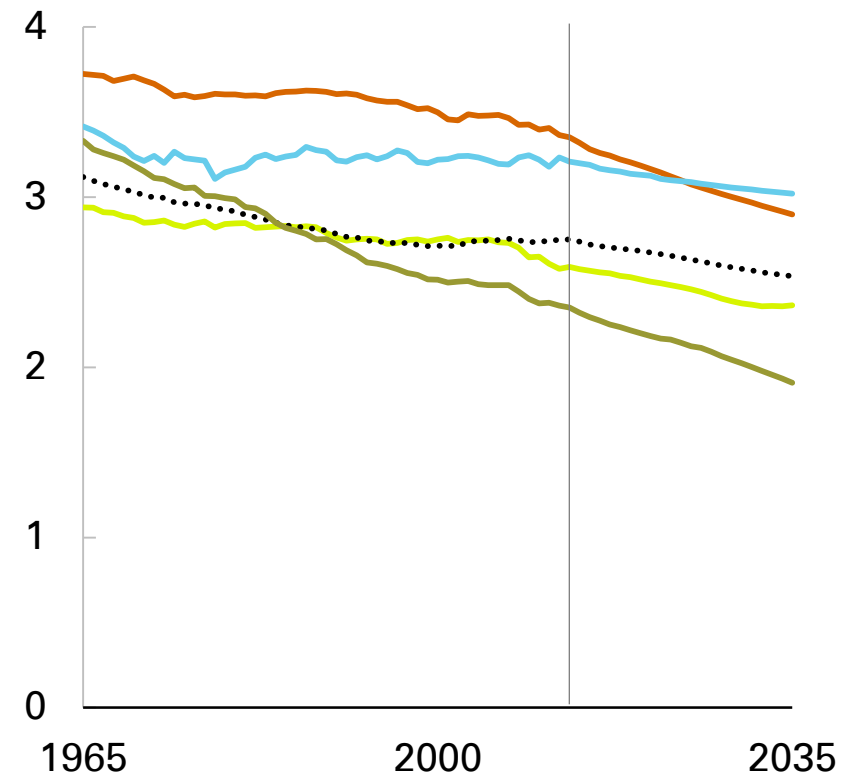
Energy intensity

Toe per thousand \$2012 GDP



Carbon intensity

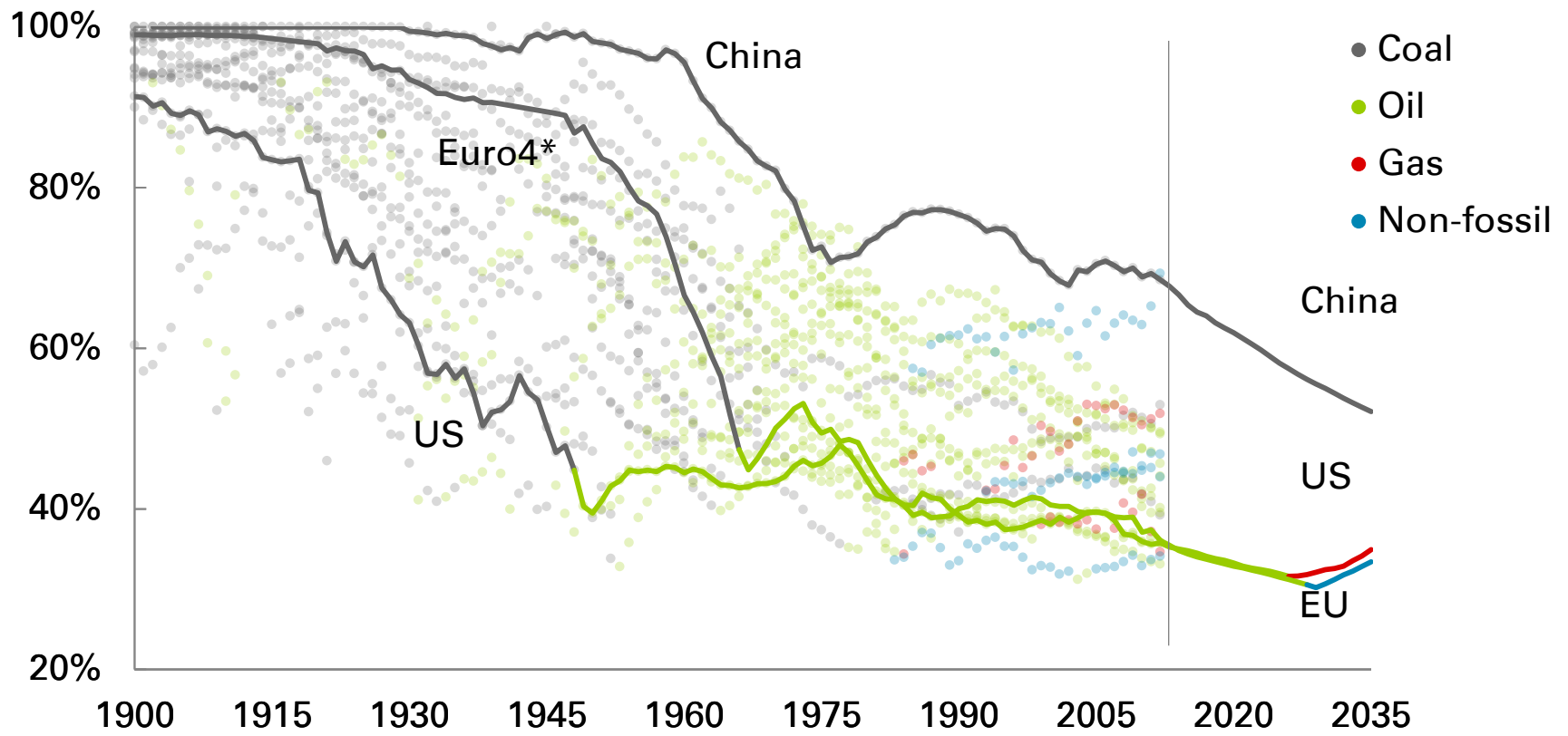
Tonnes CO₂ per toe



The fuel mix diversifies over time

Evolution of the fuel mix in 20 major countries

Share of dominant fuel

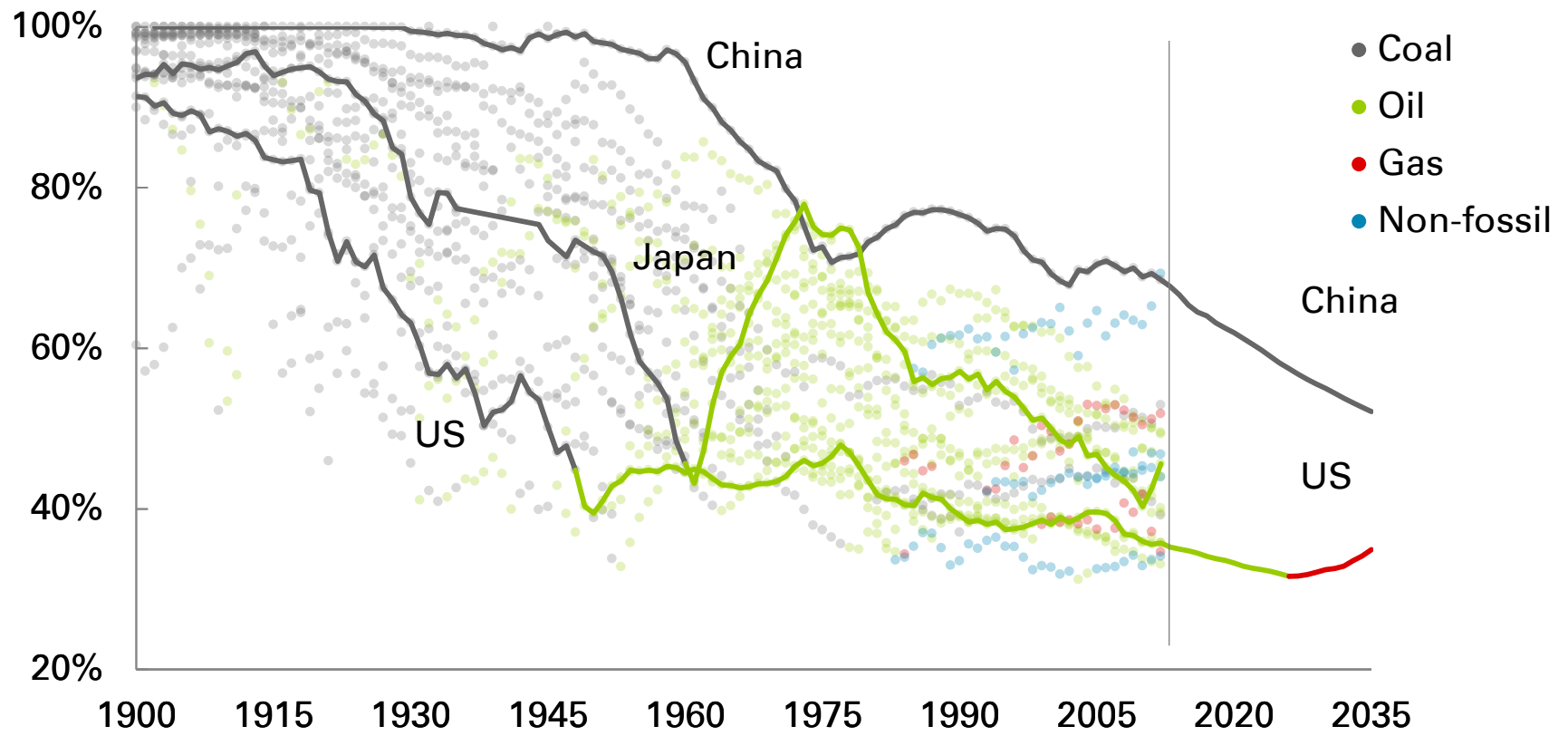


*France, Germany, Italy and United Kingdom pre-1965

The fuel mix diversifies over time

Evolution of the fuel mix in 20 major countries

Share of dominant fuel

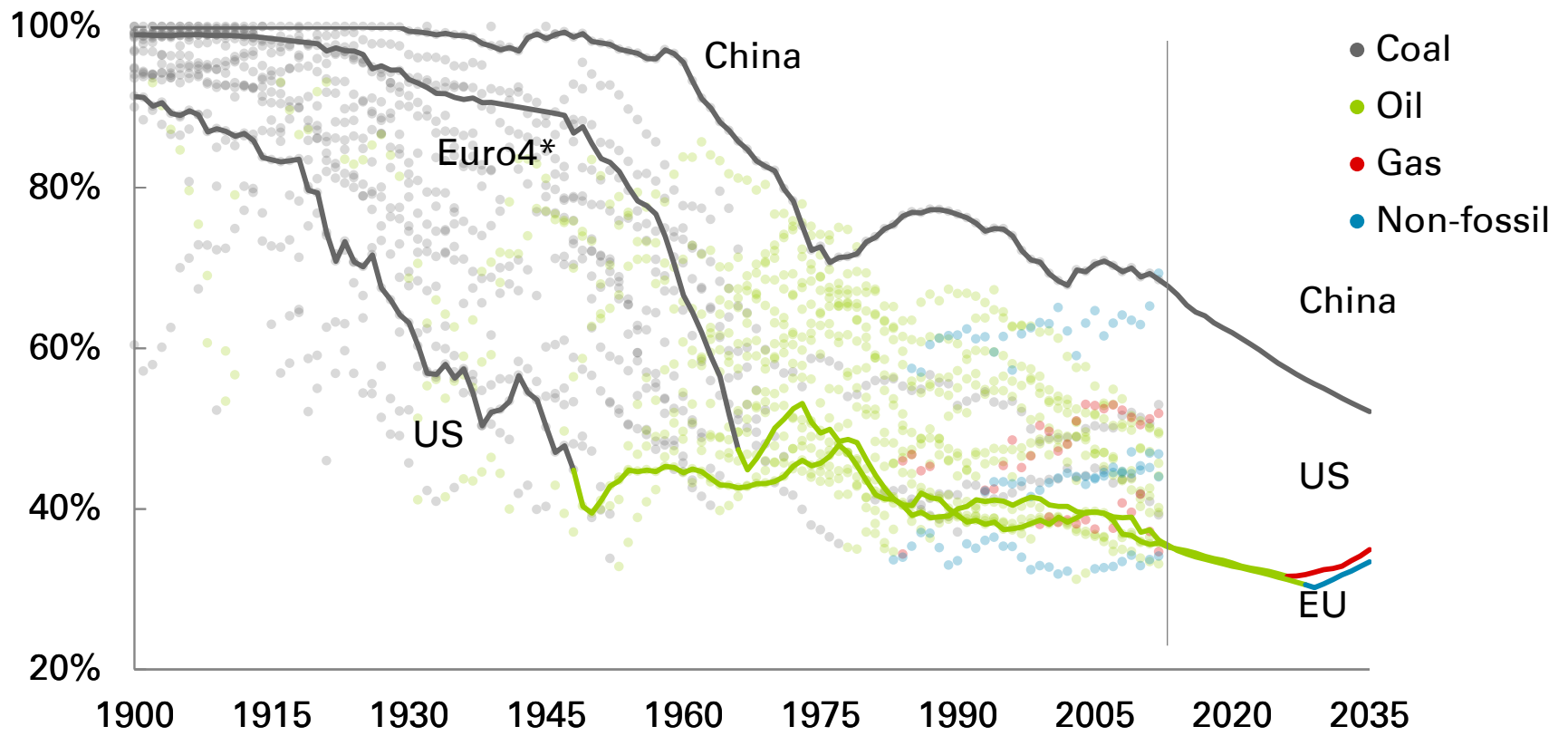


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The fuel mix diversifies over time

Evolution of the fuel mix in 20 major countries

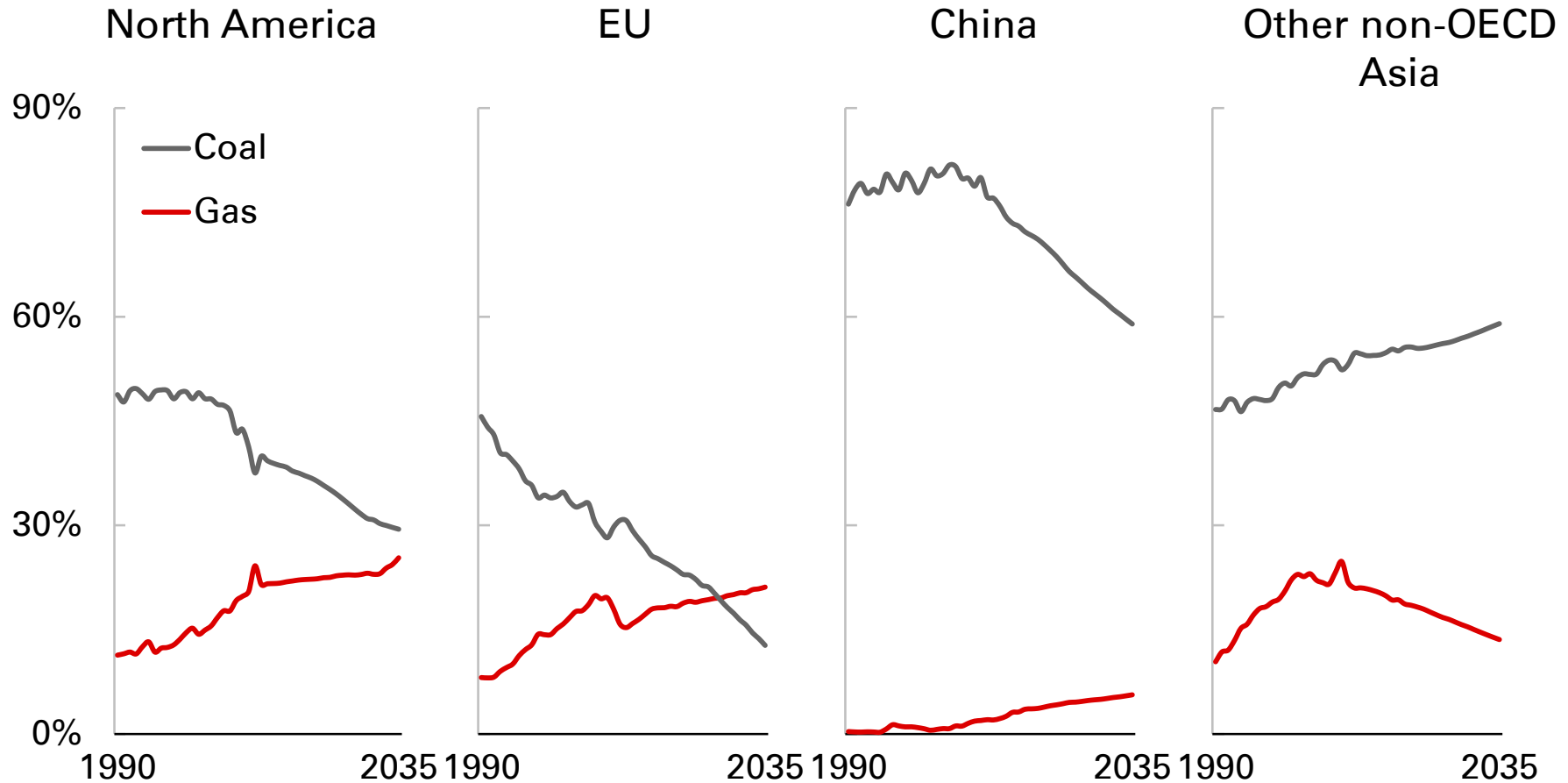
Share of dominant fuel



*France, Germany, Italy and United Kingdom pre-1965

The power sector is the main driver of fuel mix changes

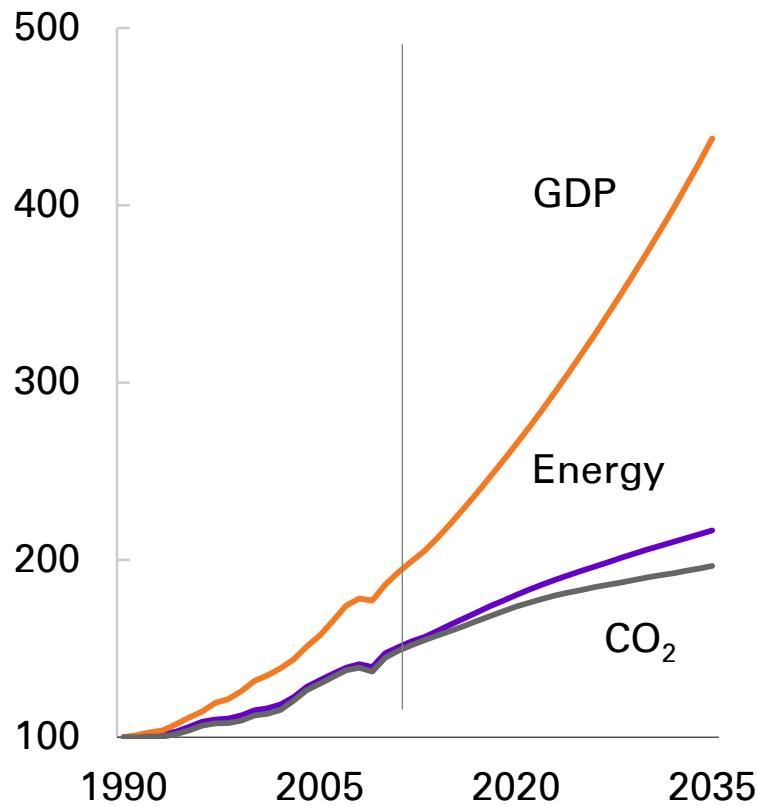
Share of power sector fuel consumption



Energy efficiency and fuel mix restrain emissions growth

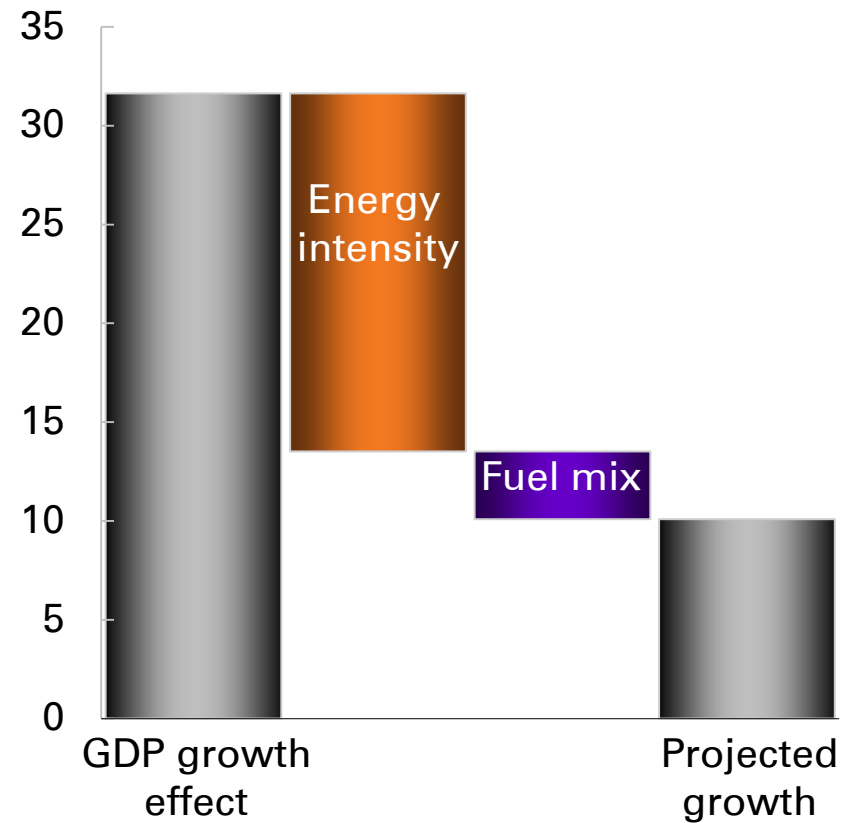
GDP, energy and emissions

Index: 1990 = 100

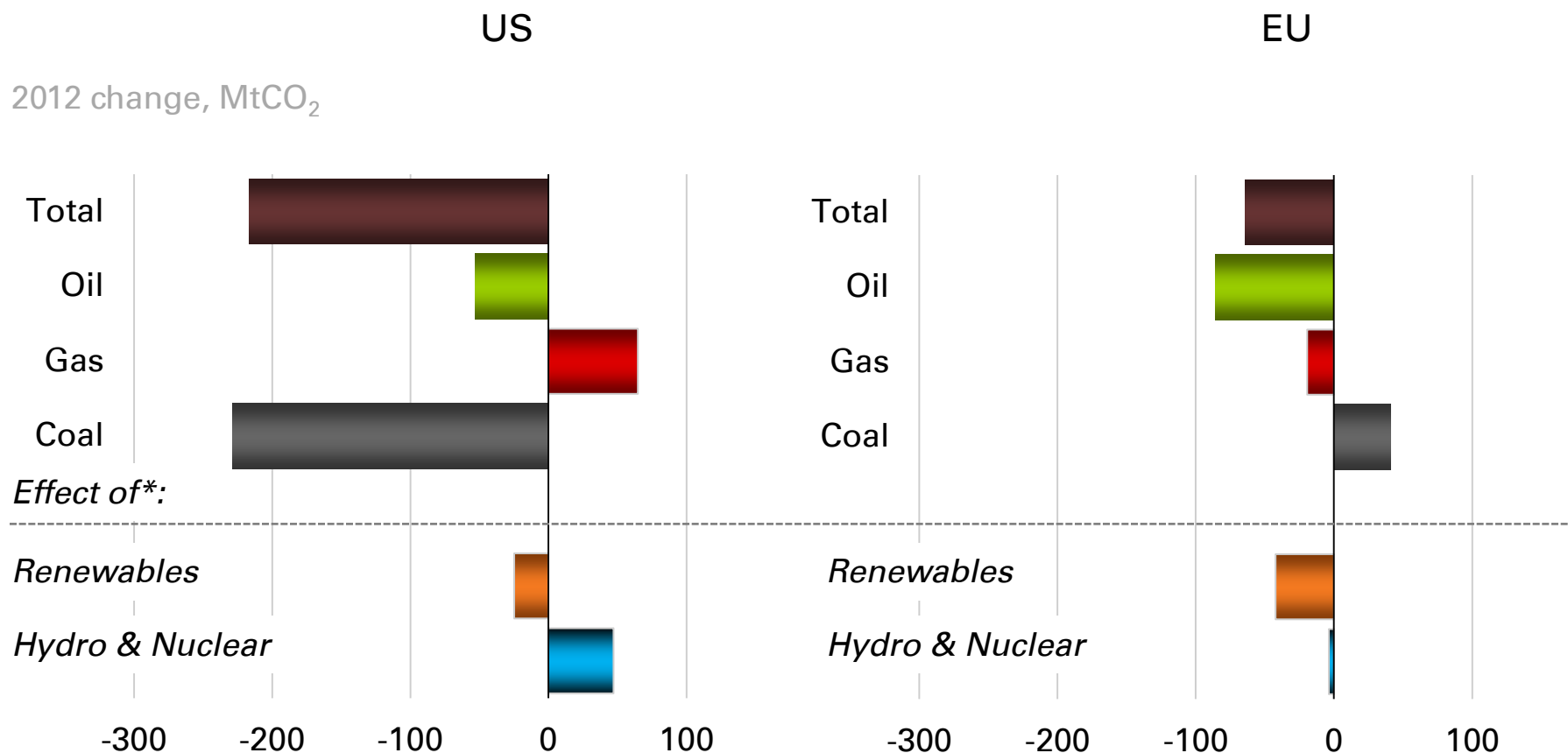


Emissions growth 2012 to 2035

Billion tonnes CO₂



Unintended consequences: Carbon emissions and subsidies



* The net effect of changes in non-fossil fuels in power on emissions, based on 2011 shares of fossil fuels in power generation



Thank you