WORLD ENERGY OUTLOOK 2007: FACT SHEET- CO_2 EMISSIONS

WHAT WILL IT TAKE TO ARREST THE RAPID GROWTH IN GLOBAL CO_2 EMISSIONS? HOW CAN CHINA AND INDIA CONTRIBUTE?

Rising CO_2 and other greenhouse-gas concentrations in the atmosphere, resulting largely from fossil-fuel combustion, are contributing to higher global temperatures and to changes in climate. Urgent action is needed if greenhouse-gas concentrations are to be stabilised at a level that would prevent dangerous interference with the climate system. Government action must focus on curbing the rapid growth in CO_2 emissions from coal-fired power stations – the primary cause of the surge in global emissions in the last few years.

- **In the Reference Scenario, energy-related CO_2 emissions jump from 27 gigatonnes in 2005 to 42 Gt in 2030**. The United States, China, Russia and India contribute two-thirds of this increase. Emissions in 2030 are 1.5 Gt higher than in last year's *Outlook*, mainly because of higher coal use in China and India. China and India alone account for 56% of the increase in emissions between 2005 and 2030.

- **China will overtake the United States as the world's biggest CO_2 emitter this year.** India becomes the third-largest emitter around 2015. China's and India's contributions to cumulative global emissions since 1900, however, tell a difference story. From 1900 to 2005, the United States and the EU countries combined accounted for just over half of cumulative global emissions. China accounted for only 8% and India 2%. China's share of emissions from 1900 to 2030 rises to 16%, approaching that of the United States (25%) and the European Union (18%). India's cumulative emissions (4%) are about the same as those of Japan (4%).

- Measured on a per-capita basis, CO_2 emissions in China were only 3.9 tonnes in 2005, 35% of those of the OECD (11 tonnes). **China's per-capita emissions reach current European levels by 2030.** India's per-capita emissions are very low, at just over 1 tonne. By 2030, they are projected to double but will still be only about one-fifth of those of the OECD.

- **In the Alternative Policy Scenario, global CO_2 emissions stabilise in the mid-2020s, reaching 34 gigatonnes in 2030**. Emissions peak and begin to decline in the OECD in 2015. Efficiency improvements, structural change in the economy and fuel-switching reduce CO_2 emissions in China by 2.6 gigatonnes in 2030 and in India by 0.9 Gt. In

addition, local pollution is reduced dramatically. SO_2 emissions in China fall by 20% in 2030, compared with the Reference Scenario, and NOx emissions are stabilised after 2010. In India, lower energy demand in the power and transport sectors reduces SO_2 emissions by 27% and NOx emissions by 23% in 2030.

- **In the High Growth Scenario, global CO_2 emissions are 7% higher in 2030 than in the Reference Scenario.** Emissions are 23% higher in China in 2030 and 19% higher in India.

- **Emission trajectories in the Reference and High Growth Scenarios are in line with a long-term temperature increase of up to 6°C, based on IPCC calculations.** In the Alternative Policy Scenario, the projections are consistent with long-term stabilisation of atmospheric CO_2 concentration at about 550 parts per million, which corresponds to a temperature increase of 3°C above pre-industrial levels.

- **In a "450 Stabilisation Case", which describes a notional pathway of energy use that is consistent with an increase in temperature to a maximum of 2.4°C (the smallest increase in any of the IPCC scenarios), energy-related CO_2 emissions peak in 2012 at around 30 Gt and then fall sharply below today's levels to 23 Gt in 2030** – 19 Gt less than in the Reference Scenario and 11 Gt less than in the Alternative Policy Scenario. Emissions savings come from improved efficiency in fossil-fuel use in industry, buildings and transport, switching to nuclear power and renewables, and the widespread deployment of CO_2 capture and storage in power generation and industry. Exceptionally strong and immediate policy action, on an unprecedented scale, would be essential for this to happen. The associated costs would be very high.