



## Energy Co2 : Fossil Fuels

### World Energy Outlook 2007: "Everything is Getting Worse"

**The International Energy Agency has published its annual World Energy Outlook, the most authoritative report on the world's energy trends. Here is a round-up of some of this year's important findings.**



#### **Fatih Birol, Chief Economist, International Energy Agency (IEA)**

"As it stands now, if we don't change our energy system in a radical way in the next ten years, the wheels will come off." (Photo: IEA)

The world faces an unsustainable energy future if governments do not radically change their energy policies in the next ten years, according to the World Energy Outlook 2007, published by the International Energy Agency (IEA).

If governments stick with current policies, the world's primary energy needs will grow by 55 percent between 2005 and 2030, the report says. Growing demand will happen mostly in developing countries and will be overwhelmingly (84 percent) met by fossil fuels. Greenhouse gas emissions will rise by 57 percent, with the United States, China, India, and Russia contributing two-thirds of the increase.

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#### **China and India: Emerging giants**

The greatest challenge the global energy system faces is skyrocketing demand from the largest developing countries, China and India. These countries' energy use will double between 2005 and 2030 if current growth and policies continue, according to the IEA. Both countries will build hundreds of power plants in the next decade to satisfy demand.

The majority of these will be coal-based. China plans to build around 500 coal-fired power stations in the next decade, at a rate of one every week to ten days. India is expected to triple its coal use between 2005

and 2030. Both countries will also demand more imported oil as the rate of private vehicle ownership increases. China's new vehicle sales will exceed those of the United States by around 2015.

"China and India are transforming the energy system," says Birol. "We expect in the next 25 years, 45 percent of oil demand growth will come from these two countries." Net oil imports in China and India combined are projected to jump from 5.4 million barrels per day in 2006 to 19.1 million barrels daily in 2030 – more than the combined imports of the U.S. and Japan today.

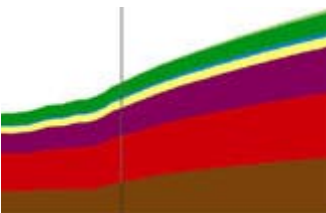
### Is there enough oil?

China and India's thirst for oil puts enormous pressure on global oil supplies. In theory, the IEA estimates that global oil reserves are sufficient. Accessing these reserves, however, is highly problematic.

"We are not sure the supply response will be there," says Birol. "The problem is not necessarily a lack of reserves, but getting reserves to the pump stations due to political and technical issues. The difficulty is that those reserves left are difficult to exploit."

Under-investment in new fields by producing countries is a big problem. While prices remain high most countries will be inclined to extract as much value as possible from existing fields. Meanwhile conventional oil production OECD countries like Norway, the United Kingdom, and the United States will peak in the next decade, meaning that the global energy system will rely more on fuel supplies from the Middle East, Russia, and less politically stable regions.

Birol says fundamental changes are needed to the oil system, including greater investment in production capacity, greater diversification of fuel sources, and greater international cooperation – especially with China and India – to maximize and conserve emergency stockpiles.



**Picture Gallery (click on the image to start)**

Projections from the World Energy Outlook 2007 at a glance (Graphic: IEA 2007)

### Emissions rising

In a marked departure from the past, this year's energy outlook reports a resurgence of demand for coal, the dirtiest fossil fuel. Coal-fired power stations have been the primary cause of the surge in global carbon dioxide (CO<sub>2</sub>) emissions in recent years. Global energy-related emissions of CO<sub>2</sub> will rise from 27 gigatons in 2005 to 42 gigatons in 2030 – a rise of 57 percent.

This alarming development is driven by electricity demand in China and India and high oil and gas prices that make coal more competitive. China and India, which already account for 45 percent of world coal use,

will account for over four-fifths of all growth by 2030.

In 2007, China became the world's largest carbon dioxide emitter in absolute terms, overtaking the U.S. By 2015, India will most probably move up to number three on the list of top emitters. However, China's per-capita emissions in 2030 will still only be 40 percent of those of the U.S. and two-thirds of OECD countries as a whole, while India's per-capita emissions will be even smaller.

### **A more sustainable system**

The IEA urges collective action to curb global energy demand, increase energy efficiency, invest in alternatives like renewable energy and nuclear power, and develop cleaner, more efficient technologies, especially for coal. Engaging China and India at every level will be vital.

"We would like to see China and India and OECD countries plan solutions to these problems together. Measures to improve energy efficiency are the cheapest and fastest way to curb demand and emissions growth in the near term," says Birol .

Given the resurgence of coal and uncertainties of oil, the IEA urges governments to develop and promote clean coal and carbon capture and storage technologies, especially in China, India, and the United States. The IEA also wants to see greater regulatory standards and mandates, particularly on energy efficiency, together with government support for long-term research and development of new technologies.

"As it stands now, if we don't change our energy system in a radical way in the next ten years, the wheels will come off," says Birol. "A lot of energy infrastructure investments will be made in the next ten years. The right decisions must be made now."

editor: James Tulloch

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