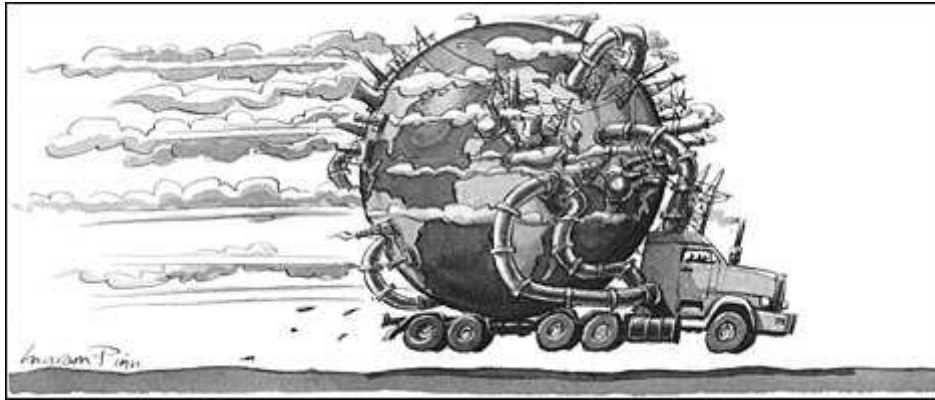


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Welcome to a world of runaway energy demand

By Martin Wolf

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“The increase in China’s energy demand between 2002 and 2005 was equivalent to Japan’s current annual energy use.” This nugget of information, buried in the International Energy Agency’s latest World Energy Outlook, tells one almost all one needs to know about what is happening to the world’s energy economy.

Neoclassical economics analysed economic growth in terms of capital, labour and technical progress. But, I now think, it is more enlightening to view the fundamental drivers as energy and ideas. Institutions and incentives provide the framework within which the development and application of useful knowledge transforms the fossilised sunlight on which we depend into the stream of goods and services we enjoy.

This is the world of abundance that China and India are now joining. Nothing short of a catastrophe will stop them. For the pessimists, however, particularly climate-change pessimists, catastrophe will follow. What is certain is that the challenges ahead are huge.

Here, then, are the highlights of the new report.

First, if governments stick with current policies (which the IEA calls the “reference scenario”), the world’s energy needs will be more than 50 per cent higher in 2030 than today, with developing countries accounting for 74 per cent, and China and India alone for 45 per cent, of the growth in demand.

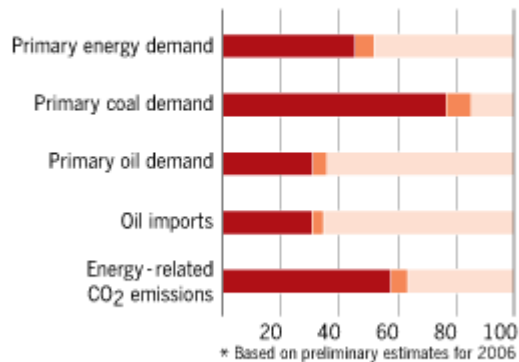
Second, this huge increase in overall demand occurs even though energy intensity of gross world product falls at a rate of 1.8 per cent a year.

Third, fossil fuels are forecast to account for 84 per cent of the increase in global energy consumption between 2005 and 2030.

Fourth, world oil resources are, insists the IEA, sufficient to meet demand at prices close to \$60 a barrel (in 2006 dollars). But the share of world supply coming from members of the Organisation of the Petroleum Exporting Countries will rise from 42 per cent to 52 per cent. Moreover, “a supply-side crunch in the period to 2015, involving an abrupt escalation in oil prices cannot be ruled out”.

Increase in energy demand, imports and CO₂ emissions, 2000-2006*

% share accounted for by: ■ China ■ India ■ Rest of the world



* Based on preliminary estimates for 2006

Source: IEA, World Energy Outlook 2007

Fifth, coal's share in global commercial energy is forecast to rise from 25 per cent to 28 per cent between 2005 and 2030, because of its role in power generation. China and India already account for 45 per cent of world coal use and drive over four-fifths of the increase under the "reference scenario".

Sixth, some \$22,000bn (a little under half of 2006 world gross product) will need to be invested in supply infrastructure, to meet demand over the next quarter century.

Seventh, even with radical measures to reduce the energy intensity of growth under the "alternative policy scenario", global primary energy demand would grow at 1.3 per cent a year, only 0.5 percentage points a year less than in the "reference scenario".

Eighth, China will become the world's largest energy consumer, ahead of the US, shortly after 2010.

Ninth, under the reference scenario, emissions of carbon dioxide will jump by 57 per cent between 2005 and 2030. The US, China, Russia and India alone contribute two-thirds of this increase. China becomes the world's biggest emitter this year and India the third largest by 2015.

Tenth, even under the IEA's more radical "alternative policy scenario" CO₂ emissions stabilise only by 2025 and remain almost 30 per cent above 2005 levels.

The rest of the world, then, wishes to enjoy the energy-intensive lifestyles that have, hitherto, been the privilege of less than a sixth of humanity. This desire does, however, have big consequences for the world's economic, strategic and environmental future.

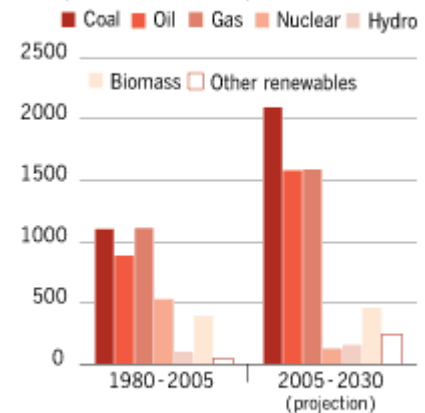
The obvious economic question concerns future prices. Today, the price of oil, deflated by the unit value of exports from the high-income countries, is higher than it has been since the beginning of the 20th century. Barring big technological breakthroughs in energy supply or unexpectedly large finds of oil and gas, energy would seem likely to remain relatively expensive.

Yet, to many, a surprise of the 1980s was how much supply finally came on stream and how low demand growth became after the price shocks of the 1970s. Might such an adjustment happen again and, if so, how quickly? Or should we regard the combination of fast-growing giant emerging economies and the dominance of national energy suppliers as fundamentally different?

The big strategic questions concern energy security and the shift in the balance of power towards unattractive regimes, be they Vladimir Putin's Russia, Hugo Chávez's Venezuela, Mahmoud Ahmadi-Nejad's Iran or the House of Saud's Arabia.

World primary energy demand by fuel

Mtoe (reference scenario**)



** IEA base scenario

Source: IEA, World Energy Outlook 2007

The shift in the balance of power occurs in two ways: first, a growing proportion of the fuels vital for what we now think of as civilised life come from just a few, not necessarily friendly, suppliers; second, these countries are becoming vastly richer. Thus, Opec revenues are forecast to triple (admittedly, in depreciating dollars) between 2002 and this year.

The challenge to security comes partly from the difficulty of replacing oil as a transport fuel. Thus, the concentration of likely supply in the Middle East is, inevitably, a concern. So, too, is Europe's growing reliance on Russian gas.

Concerns over energy security also come from the potential for competition for supplies among the big consumers. The sensible approach is to rely on the market. But that may be hard when prices shoot up. At some point, American politicians may ask why the US expends blood and treasure in order to achieve security in the Middle East for the benefit of China. True imperialism – the attempt to seize energy resources for one's own benefit – would be a ghastly error. But to err is all too human.

Finally, we have global warming. Three points shine out on this. First, despite the blather, nothing effective has been done or yet seems likely to be done. Second, effective policy will require big changes in incentives across the globe, including, not least, in the large emerging economies. Third, dramatic changes in technology will also be required, the most important of which will be towards carbon-capture-and-storage at coal-fired power plants.

What is the bottom line? It is simple: commercial energy is the staff of our contemporary life. As demand for energy rises, nothing is more important than ensuring increased supply and efficient use, while curbing environmental damage. Today's high prices are a start. Fundamental innovation and high prices on greenhouse gas emissions must follow.