PICTURE THIS

Global Energy:

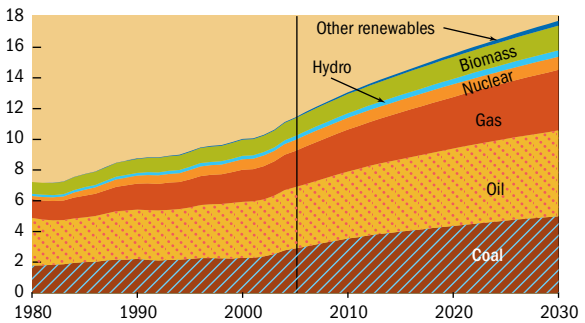
THE global energy system is on an increasingly unsustainable path. China and India are transforming the global energy system by their sheer size, and energy prices are set to remain high, according to the International Energy Agency's (IEA) latest *World Energy Outlook.* Stronger policies that encourage greater energy efficiency, as well as greater use of renewable energy and nuclear power, would make a major contribution.

If governments don't act to change consumption patterns, world energy demand is projected to grow by 55 percent during 2005–30, with use of coal rising the most in absolute terms.

China and India are the emerging giants of world energy. China will overtake the United States soon after 2010 to become the world's biggest energy consumer. In 2005, U.S. demand was 34 percent higher than Chinese demand.

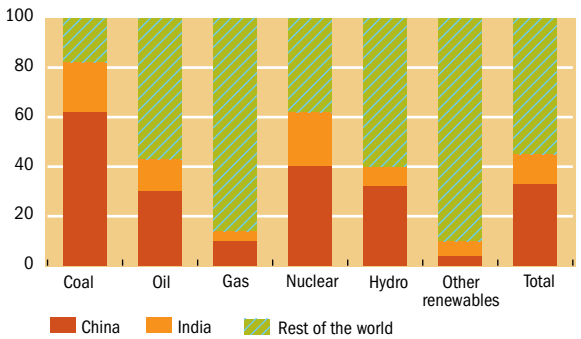
Fossil fuels—oil, natural gas, and coal—will remain dominant unless governments adjust policies, with developing countries as a group contributing about 74 percent of the overall increase in demand.

(billion metric tonnes of oil equivalent)



On current trends, China and India will account for more than 40 percent of the increase in global energy use by 2030.

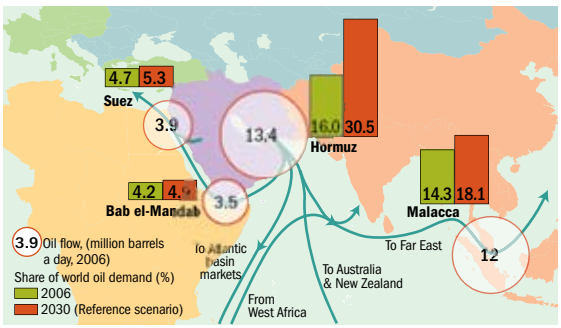
(increase in primary energy demand between 2005 and 2030 as percent share of world total)



By 2030, more than 30 percent of world crude oil supplies will be shipped through the Straits of Hormuz. Oil destined for China also has to pass through a busy and narrow route—the Malacca Straits between Indonesia, Malaysia, and Singapore.

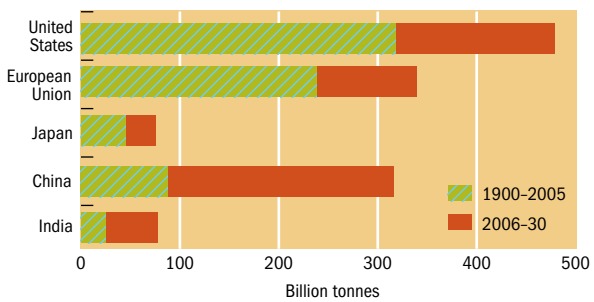
These trends don't bode well for cumulative carbon dioxide (CO_2) emissions and climate change. Historically, the United States and the European Union countries accounted for 53 percent of cumulative emissions, with China accounting for 8 percent and India just 2 percent in 2005. But China in particular will account for much of the increase in the future.

Rising reliance on Middle East oil will increase flows through vulnerable shipping choke points.



About 60 percent of the global increase in emissions during 2006–30 will be from China and India.

(cumulative energy-related CO_2 emissions)



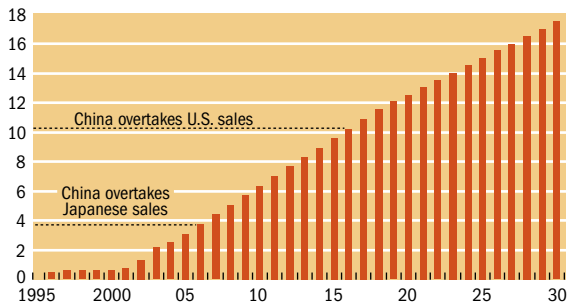
Increasingly Unsustainable

The scale of the problem is exemplified by China, which will have 270 million vehicles on its roads by 2030, boosting both oil imports and pollution. Car ownership will jump to more than 140 per 1,000 people from 20 per 1,000 in 2005, with the transport sector accounting for 55 percent of China's oil use by 2030, up from 35 percent in 2005.

But if policies to save energy and reduce emissions are implemented faster, the increase in global emissions will level off and, under one IEA scenario, could be pushed back. This would restrict the rise in average temperature caused by global warming to 3°C over preindustrial levels from a possible 6°C.

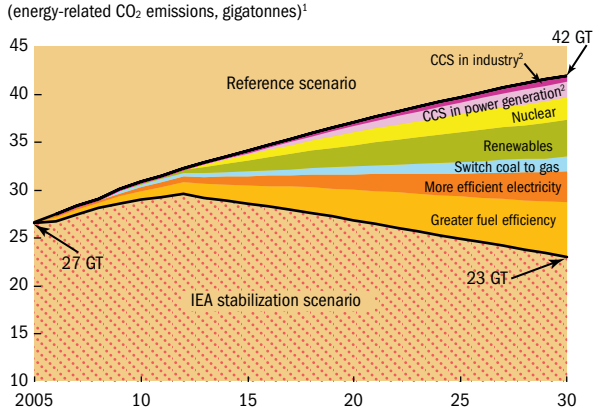
China will overtake the United States as the largest car market in the world by 2016.

(vehicle sales, millions)



Governments can still act to restrain emissions and foster alternative energy sources.

(energy-related CO_2 emissions, gigatonnes)[1]



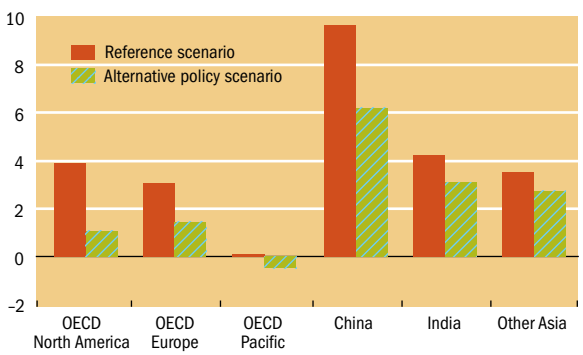
[1]A gigatonne = 1 billion metric tonnes.
[2]CCS = Carbon capture and storage.

Although Asia's oil consumption would still rise sharply, the introduction of policies to reduce demand for crude could cut global oil demand by 14 million barrels of oil a day, equivalent to the current production of the United States, Canada, and Mexico combined.

Introducing tougher efficiency standards for air conditioners and refrigerators could help China save energy equivalent to the output of the Three Gorges Dam by 2020. Similarly, in India, higher emissions standards could curb emissions from coal-fired power plants, cars, and trucks.

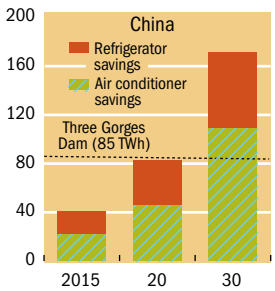
Under the IEA's alternative scenario, policies to reduce oil use would curb net imports.

(million barrels of oil a day, net increase in imports, 2006-30)



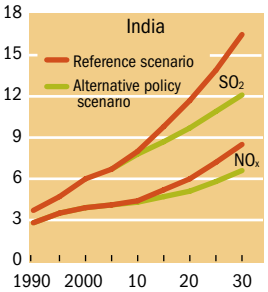
Promoting energy efficiency and higher standards can make a big difference.

(terawatt hours per year)[1]



[1]Terawatt hour = 1 million megawatt hours.

(cumulative energy-related emissions, million tonnes)



Note: SO_2 = sulfur dioxide, NO_x = nitrogen oxides.

Prepared by Lorcan Lyons, International Energy Agency. Source for charts is the IEA's World Energy Outlook, *2007.*