

Investment Themes - Energy

Energy stocks, according to us, are '**muse stocks**', which determine the orbit of growth for companies in other sectors, thus ascertaining the direction of global stock markets. This article brings out the significance of 'Energy' as an important theme of investment. Some of the energy projections of EIA till 2030 have been used in the article.

May 2008

Research:

Global Investment Themes

Theme: Energy

Why is oil price increasing?

Most commodities, including crude oil are priced in U.S. dollars. A dollar depreciation makes crude oil less expensive for consumers in non-dollar regions, thereby increasing their demand. On the supply side, price pressures arise from declining profits in local currency for producers outside the dollar area. This is a key theory behind oil price increases.

Overall, in 2007, demand from non-OECD countries (particularly India, China, and countries in the Middle East) increased by an estimated 1.3mbd, whereas OECD demand declined by 0.1mbd. In regional terms, demand fell in Europe and the former Soviet Union (FSU), but increased everywhere else.

Global oil supply increased only slightly in 2007, reflecting a combination of slightly lower production by OPEC countries and shortfalls in non-OPEC production. The latter increased only by 0.6mbd compared with an average increase of 1.0mbd during 2001-06, with most of the increase accounted for by rising production in FSU countries. OPEC production declined by an estimated 0.4mbd in 2007 compared with 2006. To some extent, the decline reflected OPEC's decisions to cut production quotas in late 2006.

Besides, a falling U.S. dollar reduces the returns on dollar-denominated financial assets in foreign currencies, which can make commodities a more attractive class of alternative assets to foreign investors. Moreover, a dollar depreciation raises risks of inflationary pressure in the United States, prompting investors to move toward real assets, such as commodities to hedge against inflation.

Also, the supply response has been sluggish to higher oil prices, but this is clearly not the result of a lack of investment. IMF estimates show that the lag between spare capacity and investment is about three years. Also, soaring prices for investment meant that this did not translate into large real investment increases. The higher investment costs were due to a global scarcity, both of equipment such as rigs and of services such as skilled engineers and project managers and to higher than average exploration and development costs. Besides, the price surge in the second half of 2007, to some extent, was sparked by heightened geopolitical concerns about tensions in the Middle East and some weather-related production shutdowns.

While oil importing nations with current account in surplus will be able to bear a higher oil import bill, nations with current account in deficit will find pressures of currency depreciation building in, which in turn is inflationary in nature. And this leads to a further increase in commodity prices, including oil, thus completing a vicious cycle.

Author

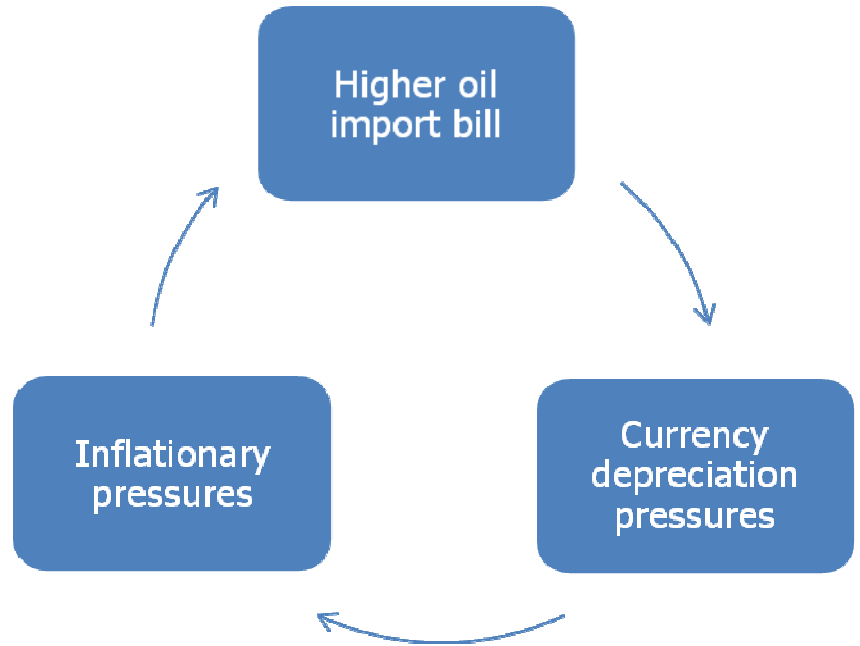
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Nations with current account in deficit



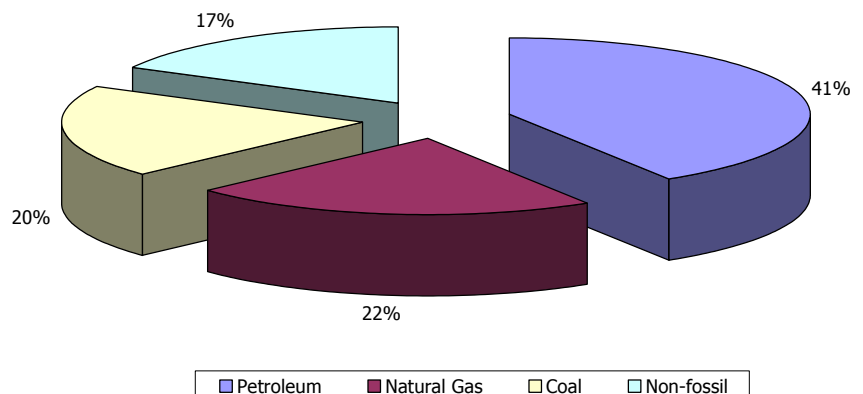
Source: Markaz Research

Energy consumption pattern

Total world energy use rises from about 480 quadrillion Btu in 2007 to 559 quadrillion Btu in 2015 and then to 702 quadrillion in 2030. Going forward, there will be rapid growths in energy demand in the non-OECD nations. Total non-OECD energy demand is projected to increase by 95 percent through 2030, as compared to an increase of 24 percent in OECD energy use. Currently, the proportion of energy consumed by OECD nations is 52% and this will continue to decline and is projected to be 1/3rd by 2030.

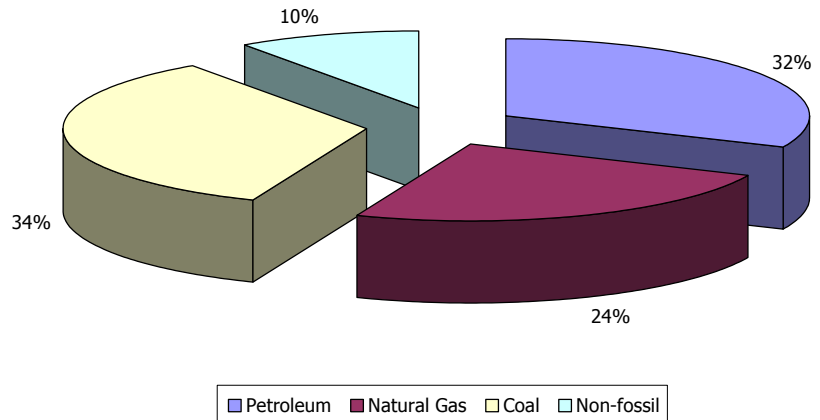
In OECD nations, the proportion of energy usage from different energy types has been stable and we believe is going to hold in future; the mix is as shown below.

OECD Energy usage distribution



In the case of Non-OECD nations, which include China and India, the proportion of usage from coal is fairly higher than OECD nations in comparison to petroleum liquids (partly because there are significant coal reserves in China and India). Also, in these nations, there is a likelihood of coal being used as a substitute resource when petroleum usage pressures built in, thus creating alterations in the mix, albeit minor.

Non OECD Energy usage distribution



Worldwide liquids consumption is projected to increase from 85 million barrels per day in 2007 to 97 million barrels per day in 2015 and 118 million barrels per day in 2030. Liquids remain the most important fuels for transportation, because there are few alternatives that can be expected to compete widely with petroleum-based liquids; however, the role of oil outside the transportation sector continues to be eroded because of high world oil prices in most regions of the world.

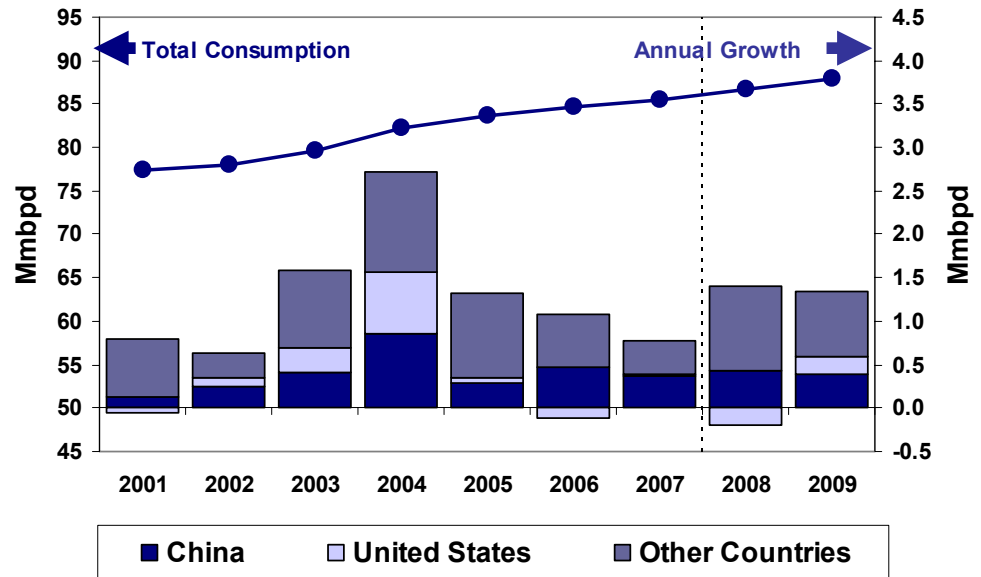
Natural gas consumption is expected to increase by 1.9 percent per year on average. Rising world oil prices increase the demand for natural gas, as it is used to displace the use of liquids in the industrial and electric power sectors in many parts of the world. In addition, natural gas is both a more efficient fuel for electric power generation and less carbon intensive than other fossil fuels, and as a result it is an attractive energy source for the world's power generation. It is the world's fastest-growing energy source for electricity generation. Natural gas prices are likely to vary from region to region, depending on the size of available resources and their distance from end-use markets.

World coal consumption increased sharply from 2003 to 2004, largely because of a 17-percent increase on a Btu basis in non-OECD Asia (China and India). Coal is an attractive fuel for nations with access to ample coal resources, notwithstanding government policies aimed at reducing coal use, its share of world energy consumption is projected to increase further. Decreases in coal consumption are projected only for OECD Europe and Japan, where population growth is slow or declining, electricity demand growth is slow, and natural gas and nuclear power are likely to continue providing significant amounts of electricity.

Relationship between growth in an economy and oil consumption

Much of the growth in non-OECD economies occurs in non-OECD Asia, which includes China and India. In the last 2 years, China alone accounted for more than 30% of the world's incremental consumption of liquid fuels.

Oil Consumption



Source: EIA

Oil consumption in an economy is linked to the growth in the economy. Oil demand will continue to rise as economies grow and will indirectly put a pressure on oil supplies or alternative energy sources that might replace oil as the choice of energy medium. The correlation between the two is explored and here are the observations.

Growth and Oil consumption go hand in hand

	Annual Consumption				GDP deflator			
	China	U.S.	Japan	Canada	China	U.S.	Japan	Canada
2000	4.8	19.7	5.5	2.0	198	100	100	98
2001	4.9	19.6	5.4	2.1	203	102	99	99
2002	5.2	19.8	5.3	2.1	204	104	97	100
2003	5.6	20.0	5.4	2.2	209	106	96	103
2004	6.4	20.7	5.3	2.3	223	109	95	107
2005	6.7	20.8	5.3	2.3	233	113	93	110
2006	7.2	20.7	5.2	2.3	240	117	93	113
2007	7.6	20.7	5.0	2.4	252	120	92	116
2008	8.0	20.5	5.0	2.4	267	122	91	118
Correlation values	0.987	0.816	0.867	0.921				

Source: Markaz Research, IMF, EIA

Supply projections

As per EIA estimates, world liquids production in 2030 exceeds the current levels by 33 million barrels per day. Increases in production are expected from both OPEC and non-OPEC producers; however, 65 percent of the total increase is expected to come from OPEC areas. In 2030, OPEC is expected to produce 57 million barrels per day and non-OPEC producers 61 million barrels per day.

Non-OPEC production increases steadily in the projections, from 49 million barrels per day in 2004 to 61 million barrels per day in 2030, as high prices attract investment in areas previously considered uneconomical. The non-OPEC market share in 2030, however, at 52% of the world's liquids production, is lower than its current share of about 60%.

Historically, estimates of world oil reserves have generally trended upward. As of January 1, 2007, proved world oil reserves, were estimated at 1,317 billion barrels. The most common measure of the adequacy of proved reserves relative to annual production is the reserve-to-production (r/p) ratio, which describes the number of years of remaining production from current proved reserves at current production rates. This r/p ratio is observed to be significantly higher for OPEC nations, thus the increasing significance of OPEC's proportion in supplies going into future.

OPEC nations have considerably higher r/p ratios

OPEC	Country	Mmbpd (2007 estimates)	% share of world production	r/p
Yes	Iraq	2.1	2%	168
Yes	Kuwait	2.6	3%	110
Yes	Venezuela	2.7	3%	107
Yes	UAE	2.9	3%	106
Yes	Iran	4.0	5%	83
Yes	Saudi Arabia	10.2	12%	75
Yes	Libya	1.8	2%	65
Yes	Qatar	1.1	1%	50
Yes	Nigeria	2.4	3%	37
No	Kazakhstan	1.4	2%	23
No	India	0.9	1%	22
No	Oman	0.7	1%	19
No	Russia	9.9	12%	18
Yes	Algeria	2.2	3%	18
No	Brazil	2.3	3%	18
No	China	3.9	5%	14
No	Mexico	3.5	4%	12
Yes	Angola	1.8	2%	12
Yes	Indonesia	1.0	1%	12
No	United States	8.5	10%	11
No	Malaysia	0.7	1%	11
No	Argentina	0.8	1%	10
No	Norway	2.6	3%	9
No	United Kingdom	1.7	2%	7

Source: Markaz Research, EIA estimates

Oil inventories

The increased global net demand (consumption minus production) in 2007 was accommodated by declining inventories. OECD inventories fell through the second half of 2007 to a level below the 5-year average. With the tightening market balance, spot prices rose much faster than futures prices in the second half of 2007, and the oil price futures curve at the front end has been more downward sloping than usual since then, implying an above average backwardation, thus creating incentives for inventory holders to release stock to accommodate short-term supply needs.

During the first two months of 2008, however, inventories started to increase on weakening demand in some OECD economies. With some capacity buildup and declining production, OPEC's spare capacity increased slightly to about 2.7% of global demand, but remains below recent historical averages and is largely concentrated in Saudi Arabia (consisting mostly of more difficult-to-refine sour crude).

End-use changes

With the exception of the transportation sector, which is dominated by petroleum-based liquid products at present, the mix of energy use in the residential, commercial, and industrial sectors varies widely by region, depending on a combination of regional factors, such as the availability of energy resources, the level of economic development, and political, social, and demographic factors.

Demand for petroleum and other liquid fuels is expected to increase more rapidly in the transportation sector than in any of the other end-use sectors. Alternative fuels remain fairly expensive, however. Proportional demand for liquids is actually projected to fall for all other uses other than transportation as shown in the table below. Barring any widespread increase in penetration of new technologies, whether driven by policy changes or other factors, the world's use of alternative fuels in the transportation sector is expected to remain relatively modest through 2030 in both OECD and non-OECD countries.

	End use distribution by energy type - Current			
	Residential	Commercial	Industrial	Transportation
Liquids	23%	22%	34%	98%
Natural Gas	39%	27%	28%	1%
Coal	7%	3%	22%	0%
Electricity	30%	48%	15%	1%
Renewables	1%	0%	1%	

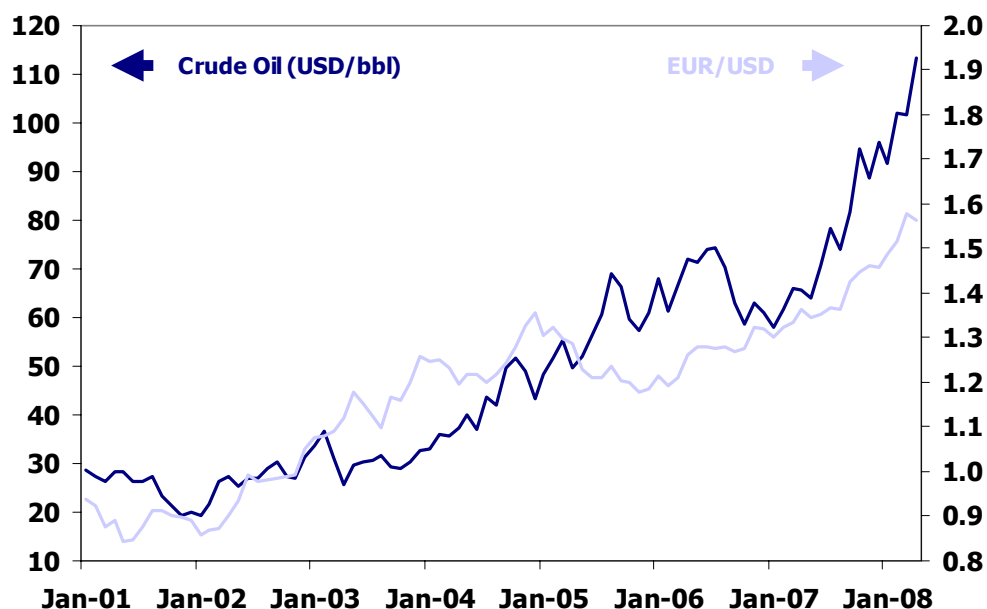
	End use distribution by energy type projection - 2030			
	Residential	Commercial	Industrial	Transportation
Liquids	19%	15%	29%	98%
Natural Gas	36%	23%	29%	1%
Coal	6%	2%	24%	0%
Electricity	39%	59%	17%	1%
Renewables	1%	0%	1%	

Source: Markaz Research, EIA

Oil – A useful hedge against USD depreciation

Oil proves to be a useful hedge against USD depreciation as the correlation between the two over the last 8 years is a high 86%. Companies with significant exposure to USD revenues could guard their bottom lines by investing in oil. Not only oil, even gold shares a similar rapport with dollar depreciation and could also be a useful hedge against dollar depreciation.

Dollar depreciation and Oil price move together



Source: Markaz Research, Bloomberg

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