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The Oil Market:
Dramatic Changes, but Not in Prices

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Oil prices are high and are likely to remain so, despite dramatic developments affecting international oil markets. The first of these developments is the increase in US production of oil and gas. Second is the increase in Iraqi output and exports, which is nearly balancing the fall in Iranian sales. Next is the growth of oil consumption in the Middle East, especially in Saudi Arabia. Finally, two other factors are causing anxiety over Middle East oil supplies and contributing to high prices: the effects of the Arab Spring, which have increased political uncertainty throughout the region, and the crisis over Iran's nuclear program.

The US government's Energy Information Administration (EIA) has estimated that in 2012 US crude oil production averaged 6.4 million barrels per day (mb/d), a rise of 14 percent over 2011. US crude oil production is forecast to increase to 7.3 mb/d in 2013 and 7.9 mb/d in 2014. Since 2008, US oil output has risen by 25 percent and the International Energy Agency (IEA) has forecast that it will increase by a further 30 percent by 2020, to 11.1 million barrels per day. Much of this is shale oil. As a result of increased production, US petroleum imports have fallen from 60 percent of consumption in 2005 to 42 percent in 2012.

Table 1 shows how world oil production developed between 2005 and 2011. Total production grew very modestly while that in North America increased by 10 percent. The other area that experienced significant growth was Eurasia, which includes Russia and the central Asian republics. (Figures for 2012 are incomplete but show a continuation of these trends.)

Table 1

World Oil Production, 2005-2011

(mb/d)

	2005	2007	2009	2011	2005-2011 change, percent
North America	15.2	15.4	15.5	16.7	10.0
South America	7.3	7.2	7.5	7.8	6.8
Europe	6.1	5.4	5.0	4.2	-31.1
Eurasia	11.8	12.6	12.9	13.3	12.7
Middle East	25.6	24.6	24.4	26.9	5.1
Africa	10.1	10.5	10.5	9.4	-7.0
Asia & Oceania	8.5	8.5	8.6	8.7	2.3
Total	84.6	84.2	84.4	87.0	2.8

Source: Energy Information Administration, Department of Energy, Washington, D.C.

Table 2 below shows that world consumption grew by 10.5 percent. The difference between production and consumption in any year is accounted for by changes in stocks. North America experienced a fall of 7.1 percent and Europe a fall of 8.5 percent as a result of the recession that began in 2008. The rest of the world experienced a growth of demand, of which the Middle East was the leader with over 27 percent increase in consumption.

Table 2

World Oil Consumption, 2005-2011

(mb/d)

	2005	2007	2009	2011	2005-2011 change, percent
North America	25.2	25.1	23.0	23.4	-7.1
South America	5.5	5.9	6.1	6.5	18.2
Europe	16.4	16.2	15.4	15.0	-8.5
Eurasia	4.1	4.1	4.1	4.4	7.3
Middle East	5.8	6.3	6.8	7.4	27.6
Africa	3.0	3.1	3.3	3.3	10.0
Asia & Oceania	24.0	25.0	26.1	28.2	17.5
Total	84.0	82.6	84.8	88.2	10.5

Source: Energy Information Administration, Department of Energy, Washington, D.C.

The US is not the only country with large shale resources. In recent weeks, a major shale oil finding of up to 233 billion barrels has been announced in South Australia. This could be worth $20 trillion, but much caution is needed given the complex geology involved. The announcement, however, adds momentum to efforts going on all over the world to extract oil and gas from shale. Israel, Jordan and North African states all have large shale reserves. Recent discoveries may increase the incentives to invest in technology and increase the likelihood that more of the world's shale resources will be commercialized.

The US is also experiencing an upsurge in natural gas production that is having major effects on the economy. The EIA estimates that the US has approximately 62 trillion cubic meters of natural gas reserves, similar in size to Saudi Arabia’s proven oil reserves and equal to 100 years of US demand. Natural gas production rose nearly 35 percent in the years 2004-2012, with shale gas accounting for almost all of the increase. During the last decade, the share of shale gas in total US natural gas production has risen from two to 37 percent and as a result, the US has overtaken Russia as the world’s largest natural gas producer.

In the Middle East there have also been important developments. First, Iraq is experiencing an oil boom. Production has risen continuously from just over 2 mb/d in 2007 to almost 3 mb/d in 2012. This 46 percent increase nearly balances the fall of Iranian production from

just over 4 mb/d in 2007 to about 3 mb/d in 2012. As a result of US-led sanctions, Iran's crude exports fell to about a million barrels a day at the end of 2012, compared with 2.4 million a year earlier. In January 2013, Iran's oil minister acknowledged for the first time that petroleum exports had fallen by at least 40 percent over the past year. The prospect of a fall in Iranian oil production had worried oil market analysts, but these fears have receded given the increase in Iraqi and other countries' production.

The IEA is upbeat about Iraq's prospects. It has forecast that Iraqi oil production could double to 6.1 mb/d by 2020 and reach 8 mb/d in 2035. The largest increase in production would come from the fields in the southern Shi'a region near Basra. A resolution of disputes over governance of the hydrocarbon sector would make possible significant growth in production from Kurdistan as well. Achieving this will require rapid progress throughout the energy supply chain as well as security and thus political stability.

Adequate rigs will need to be available and large investments will be needed in order to bring up to 8 mb/d of water inland from the Gulf to Iraq's southern fields, which will be essential to support oil production and to reduce potential stress on scarce freshwater resources. Oil storage and transportation capacity will need to be developed to accommodate the expansion in output and reduce over-reliance on the southern sea-borne route.

Another significant trend has been the increase in oil consumption among Middle East oil producers. Saudi Arabia is now the world's sixth-largest oil consumer, using more than a quarter of its near 10 mb/d output. The six OPEC members in the Middle East (Iran, Iraq, Kuwait, Qatar, Saudi Arabia and the UAE) experienced consumption growth of 56 percent in the first decade of the century, four times the global rate and nearly double that in Asia.

There are several reasons why consumption has grown so fast. The first is demography. Between 2000 and 2012, the population of the six Middle East OPEC members increased by almost a third from 115 million to 152 million. As a result, the demand for electricity, water and petrol rose. Saudi electricity generation capacity has doubled in the past decade; at peak consumption periods, half of it is used to power air conditioners.

The second reason for the increase in Middle East consumption relates to the nature of energy production, which itself uses energy. Aramco, the Saudi state oil company, consumes nearly 10 percent of the country's energy output. Attempts to diversify the Saudi economy—and others in the Gulf—beyond oil, gas and petrochemicals have so far been very limited. The third reason for rising oil consumption is the inefficiency of domestic energy markets. Some 65 percent of Saudi electricity is generated using oil. In developed countries, price rises and the relative inefficiency of oil in electricity generation have resulted in its use being largely phased out.

Oil is used wastefully because it is massively subsidized. Energy subsidies in the Middle East are estimated at $170-$200 billion, equal to 5-6 percent of GDP and accounting for two-thirds of world energy subsidies. Subsidies have been made possible by the high international price of oil that has resulted in a huge rise in revenues. One of the easiest ways to spread oil wealth has been to charge little for energy. It also means that the opportunity cost of low domestic prices, in terms of forgone exports, is high. Iran, Jordan, Egypt and other countries in the region all face the same problem.

As a result of these trends, the Royal Institute for International Affairs in London has stated that Saudi Arabia may become a net importer of oil by 2038 while the Saudi financial consulting company, Jadwa, has suggested that it may consume its entire production capacity of 12.5 mb/d by 2043.

The Gulf States have become used to high oil revenues, although they maintain very large and partly hidden financial reserves. In January 2012, Ali Ibrahim Al Naimi, the Saudi oil minister, said that in order to balance its budget, it aimed to keep oil prices at $100 a barrel throughout 2012, which they achieved. In 2012, the OPEC basket price averaged $109.45, a rise of 1.9 percent over 2011. In 2011, the OPEC basket price rose by 30 percent, so maintaining the price in 2012 was considered by OPEC to be a significant achievement.

In 2012, Middle East and North African members of OPEC earned some $760 billion from oil exports, equal to 75 percent of all OPEC revenues. Ten years ago they earned about $150 billion. This was a huge increase even after allowing for inflation. The Arab Spring has pushed Saudi Arabia and other states into large spending programs on welfare, and they therefore had an even greater need for revenues than before. The International Monetary

Fund has estimated that Saudi Arabia and Abu Dhabi both need oil prices at about $80 a barrel to balance their budgets. Only a decade ago they were able to balance their budgets with oil prices averaging $25 a barrel. The Institute of International Finance forecasts that the break-even price will reach $110 a barrel in 2015.

What are the effects of changes in the pattern of oil production? Although oil production in the United States is increasing, it will not displace other producers in the market. This is because demand, especially from China, is expected to go on rising. The development of oil shale and the move towards other fuels in Europe and elsewhere is likely to help meet increased demand rather than displace existing sources. The demand for oil will continue to rise.

One geopolitical impact is already clear. Rising US oil production, along with increased Saudi output, has helped provide offsetting supplies that have made the sanctions on Iranian oil much more successful than anticipated a year ago.

But US engagement in the Middle East is not simply about oil imports. The US buys only about 12 percent of its oil from the Gulf. Its interest is less about how much oil flows to the US and more about the overall accessibility and stability of supplies on which the world economy depends. The US will be affected by any disruptions to the global market that drive up prices.

The significance of the rebalancing of world oil production goes beyond the Middle East to crucially affect, for example, the relationship between the US and China. Beijing will see an increasing share of its imports coming from the Middle East, while US direct reliance on the Gulf is low and may decline further. Yet it is the US armed forces that are keeping the lines of supply open, principally by standing up to Iran. The other key change is the continued strengthening of the US economy, especially its balance of payments as a result of increased domestic energy production. This will make it less dependent on Chinese purchases of US treasury bills. All this results from changes in energy markets that may not necessarily be reflected in prices.

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