International interests and tensions

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World energy demand is projected to increase heavily over the coming decades and as the import dependence of consuming nations increases, international competition for dwindling reserves will gather pace

Energy supply and concomitant supply security have returned to the political agenda, settling in as a top priority in recent years. Stable oil and gas markets in the 1990s made politicians believe the energy-security problem had disappeared. But, from the 1998 Asian financial crisis and the consecutive oil bust onwards, world events have succeeded each other in a frantic manner. After the bust the market saw:

- The rebirth of Opec;
- Strikes in Europe in 2000, over what were perceived to be high gasoline prices;
- The 11 September 2001 terrorist attacks in the US creating question marks about future developments in the Middle East;
- The Venezuelan oil-workers strike of December 2002 that cut production to close to zero;
- The invasion of Iraq in 2003 and continuing military intervention in the country;
- A large and unexpected Asian demand rise;
- Hurricane damage to US Gulf of Mexico oil and gas production and refining infrastructure;
- A strained world refining situation; and
- Oil prices settling around $65-70 a barrel.

Similar pressures have built up in world gas markets, as gas prices are mostly indexed to oil. Consumer nations in Europe started to point the finger at the excessive market power of some distributors and gas lost its innocence in the Russian-Ukrainian gas dispute at the beginning of 2006.

Demand and supply have moved to the top of the political agenda and policymakers draw dark pictures of future scenarios

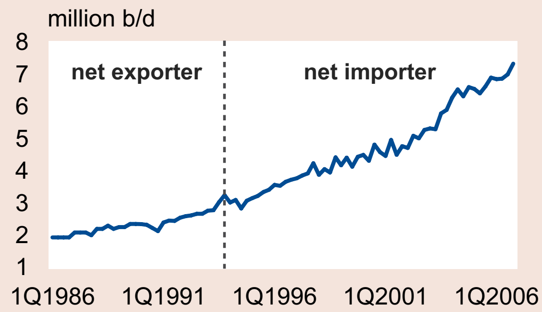
While some of these events were symptoms of ongoing circumstances, the rise in prices to previously unknown levels and the rise of Asian, and particularly Chinese, demand have increased politicians' awareness. Demand and supply of energy have moved to the top of the political agenda and policymakers draw dark pictures of future scenarios.

Asian demand bull

Strong Asian oil demand has been the most noteworthy development of the last few years, in terms of pure market metrics as well as in political terms. World oil demand rose by 5.6m barrels a day (b/d) from 2002 to 2005 and is predicted to continue with another 1.8m b/d rise in 2006, according to the International Energy Agency (IEA). Some 27% of this incremental world demand originated from China, which surpassed Japan as the world's second-largest oil consumer in late 2004.

Concomitant with annual GDP growth of 8.5% from 2000-2004, Chinese oil demand has risen by 8.4% a year. Considering that China was an oil exporter only 12 years ago (see Figure 1), the market was taken by surprise. This fast-paced development raises the question of its sustainability and whether demand-side strains on the market will continue. If history is a guide, it can be assumed that China's oil-demand growth (and imports, as production has been stable) will continue, at least in the medium term.

Figure 1: Chinese oil demand



Source – International Energy Agency

Two predecessors followed a similar development path: Taiwan and South Korea, which both had booming GDP growth rates of 7.5% a year from 1980 to 1997. Oil consumption growth was 4.3% in Taiwan and 8.7% in South Korea – comparable with the development of China between 2000 and 2004. For Taiwan and South Korea, however, this development lasted for more than 15 years. Accordingly, there is reason to believe Chinese demand will continue to grow for a number of years.

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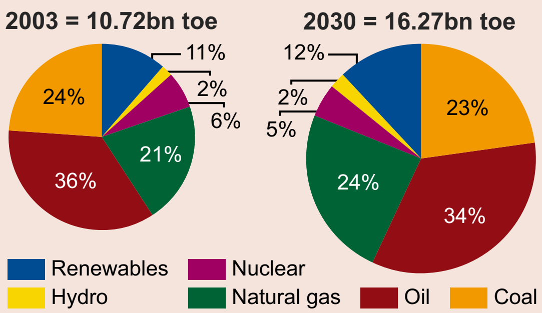
The growth rates in energy consumption in China and also India are one consequence of the dramatic changes in industrial structure in those countries, brought forward by a stringent mixture of development and globalisation. Development has enabled primary industry to grow, in itself a traditionally energy-intensive process, while globalisation has allowed industrialised countries to outsource increasing amounts of their heavy industry to Asia. In the process of moving from primary to service-sector industries, OECD countries have been transferring energy-intensive production processes to Asia – contributing to the huge demand increases.

Figure 2: World total primary energy supply



Source – International Energy Agency

Moreover, much of the incremental Chinese and Indian oil demand in the coming years will be the result of intensive motorisation of the population. With an average of less than 20 cars per 1,000 inhabitants in 2005, China has plenty of potential for growth (US car ownership is 800 per 1,000) before it reaches saturation. Additionally, with continuing economic development, new sections of the population are only now reaching the level of income at which expensive durable goods (such as cars) are usually bought. However, one caveat exists: development of motorisation and, consequently, oil demand increases are highly dependent on the oil price and its volatility, much more so than in mature economies. This is because low-income economies (as China and India still are) have a high price-elasticity of demand and high oil intensities.

Traditional OECD market-relevance fading

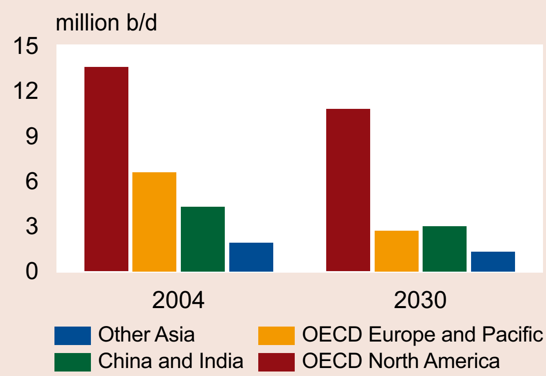
Total world primary energy demand is projected to increase heavily over the coming decades (see Figure 2). According to IEA forecasts, energy demand is set to rise by 60% in the period up to 2030. Oil will still lead the world's energy mix in 2030 (34%), while gas will have taken over as the world's second-largest energy source, outstripping coal (see Figure 2). Over this period, Chinese oil demand will rise from 5.2m b/d to 13.3m b/d, while India's will rise 115% to 5.6m b/d. Two main challenges follow from this projection:

- As oil will still be the major energy source in 2030, major efforts must be made to supply markets with the quantities necessary and to provide for a secure supply environment. This requires considerable investment in upstream and downstream capacities, which opens up a discussion about whether market forces will be granted access to the bulk of remaining reserves, or whether output-capacity decisions will be made solely by producer states. This demand scenario also questions the investment behaviour of OECD countries over refining capacity – a bottleneck that is a fundamental driver of prices; and
- As more than 75% of the increase is projected to stem from non-OECD countries, markets will see a fundamental inversion on the demand side. While in 1971, 62% of total world energy demand came from the OECD, this share shrank to 51% in 2003 and is set to fall to 42% in 2030. On the oil market, this change is even more pronounced, as the OECD share is set to fall from 74% to 47% of world demand over the same period. Consequently, today's top consumer nations must make room for the demand and concomitant supply concerns of industrialising nations, especially India and China. The fundamental consequences of this change may be, more than pure market metrics and the adaptation of economic agents, a tangible accentuation of divergent geopolitical interests and political tensions.

Increasing import dependence

The huge expected increase in world demand raises the question of how consumer nations will satisfy their energy needs. Following the first oil-price shock, in 1973, consumers searched for oil in other parts of the world to reduce dependence on imports from the Middle East. As collateral of high prices, exploration and development of new production has proved highly successful, leading OECD countries to produce almost half

Figure 3: Oil output in consumer regions



Source – International Energy Agency

their oil consumption domestically. However, this calming trait has come under pressure, as increasing demand has been confronted with stagnating domestic production in recent years, causing oil self-sufficiency to decline from a peak of 47.5% in 1997 to about 40% in 2005.

And this trend is likely to continue. Domestic production in the main consumer regions is set to decline heavily over the coming decades – which holds true for OECD North America, the rest of the OECD, and the booming demand regions of India and China (see Figure 3. Declining production may be smaller when non-conventional oils, such as Canada's oil sands, are included – see article p23).

Production capacity in consumer nations depends on oil prices, as high-cost production and non-conventional oils will come on stream if prices allow

Production capacity in consumer nations depends on oil prices, as high-cost production and non-conventional oils will come on stream if prices allow. So, the higher the price, the more production will occur outside Opec and the former Soviet Union (FSU). However, the depicted production scenario already embodies a rather high oil price of \$65/b in 2030 (nominal), and even high-price scenarios of \$86/b in 2030 do not change much of the picture for OECD countries. For the OECD, the share of domestic production is projected to dwindle to less than 25% of consumption in 2030. And as import dependence increases international competition for reserves will gather pace.

Concentration of remaining reserves

This puts a spotlight on the location of remaining oil and gas reserves and their concentration in a handful of countries. Two-thirds of the remaining oil reserves are in the Middle East and three-quarters of gas reserves are in the Middle East and FSU (see Figure 4). This regional concentration, which is exacerbated as resources elsewhere deplete, raises concerns for consumer nations. This is not only because of the political conundrum of heavily divergent interests in the region that lead to the expectancy of (further) instability, but also the result of the lack of access by market forces to the reserves.

In most Middle East countries, upstream policies prohibit access to reserves for international oil companies (IOCs), excluding market allocation of funds and technology to capacity and investment levels. Consequently, sub-optimal extraction paths are chosen, which ultimately lead to higher prices. With the extraction-path decision resting uniquely with the state, discussions about the optimal production path will be heated – as producer visions are unlikely to be congruent with those of the consumers.

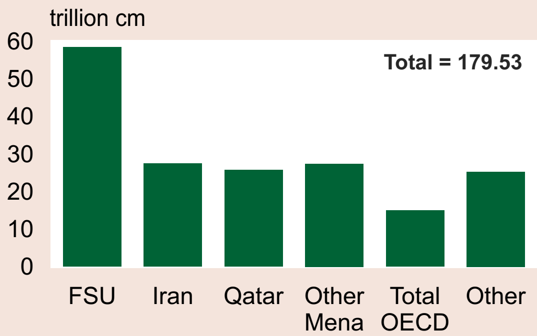
That is especially the case, as long-term considerations of resource extraction paths collide with short-term necessities of spending oil revenues for political/fiscal matters in producer states. The latter is becoming especially relevant, as ruling governments in many Opec countries are under societal pressures – because of population growth and age structure, education, unemployment – pressures to which rulers have to bend, at least partially, to stay in power. So, while highly comprehensible from a political perspective, this behaviour can lead to capital accumulation below the critical mass necessary for investment in production capacity.

This is reinforced by the belief of many observers that world oil production outside Opec and the FSU has already peaked or is about to peak. So, oil demand increases can be dealt with only in co-operation with the Middle East's resource owners.

Latecomer syndrome

The rise of the booming emerging markets on the demand-side of the energy equation increases the pressure on the geopolitics of reserves. China and India must supply energy-hungry economies and face a world in which resources are either already in the hands of Western IOCs, or are not accessible. Both countries are demonstrating latecomer syndrome: the frantic hunt for accessing and owning reserves. The consequences of this hunt have been in the news over the last couple of years, as Chinese and Indian companies have overbid for reserves, the corporate strategies of their national oil and gas companies seeming to be less capital-market bound, acquiring reserves wherever possible in Central Asia, Africa, Latin America and even challenging the home-turf of the IOCs with the attempted purchase of Unocal and Canadian oil-sands plays.

Figure 4: Proved gas reserves, end-2004



Source – International Energy Agency

Leaving aside the US decision to block the Unocal deal, most problematic from a Western political perspective is the latecomers' focus on those countries that are not dominated by the IOCs. Often these are untouched areas because of the sanctions decisions of Western governments. Chinese and Indian investment and bilateral co-operation undermine the political thrust of sanctions on countries such as

Sudan and Iran. Sudan, long deserted by IOC's, has seen Chinese acquisition of oil stakes, which undermined possible UN sanctions during the Darfur crisis. Similarly, in Iran, where the notable absence of US firms offers a unique chance of acquiring access to reserves, Asian interests may collide with a solution of the nuclear puzzle. In 2004, China and Iran agreed a $100bn gas-export deal.

Lost spare capacity – returning?

Vanishing spare production capacity (see Figure 5 – a little over 1m b/d today), has disrupted the market's security cushion . Among events responsible for the lost capacity are: the Venezuelan general strike in December 2002, which disrupted 3m b/d of world supplies (the country's production is yet to return to pre-strike levels); and the US military invasion of Iraq in March 2003, which disrupted a further 2.5 m b/d of supply. On both occasions, existing spare capacity was brought on stream to replace the missing barrels. But, on top of these output losses, came the unexpected Chinese demand boom.

From a business perspective, it makes no sense to invest in production capacity that is to be left idle

From a business perspective, it makes no sense to invest in production capacity that is to be left idle. Consequently, the reality of spare capacity is non-existent for market-focused oil multinationals, as it is for most other commodities, such as coal, tin and copper. Exclusively held by Opec, spare capacity enabled the cartel to influence the market and manage a price band.

However, the times of spare capacity have gone and their comeback is by no means certain, given the exploration and investment behaviour of Opec nations. This raises concerns in consumer countries, as the lack of spare capacity increases both price levels and price volatility. And the latter has proved a real threat to the oil market, as investment decisions are heavily influenced by price expectations. Without a sufficient buffer, production and price cycles are likely to become more intense.

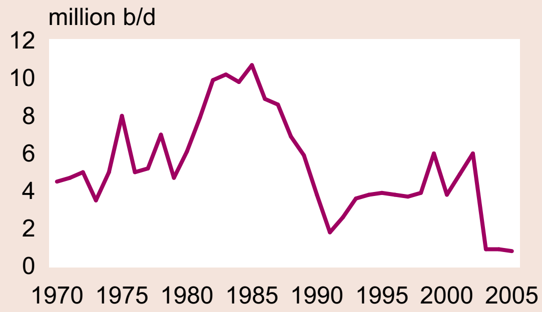
The hidden gas guzzler

A key aspect of discussions among energy experts and policymakers has been the emergence of gas, which has become a key resource in the OECD energy mix over the past few decades. Its importance is likely going to increase, due to projected demand growth both in the OECD and Asia, significant reductions in liquefied natural gas (LNG) transportation costs and concerns over the concentration of reserves – Russia, Iran and Qatar possess 60% of the world's total reserves.

From a European perspective, the gas market presents unique challenges: projected demand increases, declining/stagnating domestic production, and relative proximity to the reserves holders. Europe is the world's largest gas-import market and the continent will retain this position in 2030. According to IEA forecasts, North America will import 140bn cm/y in 2030, China/India some 80bn cm/y and Europe around 0.5 trillion cm/y (up from 200m cm/y now). European imports will amount to more than twice the other two regions together – a situation that will have profound implications for global gas markets, supply infrastructure and security and, most of all, for European interests.

Russia does not plan to supply Europe's supplemental gas demand. According to the "optimistic scenario" in the Russian government's Energy Strategy to 2020, gas exports to western Europe will rise by around 30bn cm/y up to 2020. Consequently, Europe will have to satisfy its gas-import needs from other sources. North Africa will play an increasingly important role and so will other more remote sources (such as Trinidad). The resources of the Middle East also come into focus, because of their reserves potential and proximity. Iran and the Caspian, with 20% of proved gas reserves, are closer to Europe than Russia's gasfields in western Siberia and will soon share a common border with the EU (Turkey).

Figure 5: Spare world oil output capacity



Source – International Energy Agency; SWP

This has not gone unnoticed and competition for the reserves has had a head-on start with the China-Iran gas deal. The same holds true for recent activity at the highest political level, with struggles over pipeline routes and upstream access in Russia's far east and eastern Siberia. East Asian economies see their opportunity to be supplied gas from their neighbour, Russia – which will have to make a decision as to the direction of its future energy exports.

It is not clear whether the Gordian knot of divergent energy and political interests in the Middle East will be solved in the future. What is certain is that the Middle East will become the centre of international interests and tensions – even more than in the past. And that increasing energy demand plays the central role. ◆