

Energy, growth and globalisation

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The oil industry is being reshaped by globalisation – and, at the same time, challenged by it. Today's challenges are very different from yesterday's. Meeting them – and thus ensuring secure supplies for the future – will require much innovation and fresh thinking. The issue of security has been driven home by Hurricanes Katrina and Rita and the resulting energy shock – one of the biggest since the 1970s. But it was market pressures that created the conditions that meant that the disruption in the Gulf of Mexico could have such a large impact.

For it is a “demand shock” – the surge in consumption – that has created a very tight balance and sent oil prices spiralling upwards. This demand shock did not come from nowhere. It represents the success of globalisation – the best global economic performance in a generation. More specifically, it reflects the rapid integration of China and India with the world economy. What is unfolding is truly an epochal development – two countries representing a third of the world's entire population are becoming progressively interconnected with the global economy. Consider what that means: growing trade, rising incomes, increased industrial production, more automobiles, more travel. And, in every case, this is happening on a massive scale translating into rising energy use.

China's integration can be measured in terms of its export prowess and financial reserves, as well as its oil imports. A dozen years ago, it was self-sufficient in oil. This year, imports will be needed to meet half of its requirements, and it is the third largest oil importer in the world.

While China's petroleum imports had been going up for some time, only in the last two years did they capture the attention of the world oil market. In 2004, China's oil demand rose by an astonishing 17 per cent – close to one million barrels per day. No country has seen that large an increase since the United States in 1978 – and then it was off a larger base. Almost half of this growth was the result of shortages in China's electric power industry, as demand outstripped capacity, creating bottlenecks, and widespread blackouts. There was only one quick fix, and that was oil, both for power plants and for diesel generators in individual factories. And that is why China's oil consumption and imports jumped so dramatically. This

year's demand growth will be much lower – under four per cent. But who, a decade ago, would have thought that problems in China's electric power industry could possibly have so transformative an effect on the world oil market?

At this point, India's oil demand is just about 40 per cent of China's. But if India is now truly launched on the “growth turnpike” – to use a phrase of the distinguished Indian economist Vijay Kelkar – then its weight too will increasingly be felt on the world oil market.

Globalisation is also driving the emergence of a second global energy business – LNG (liquefied natural gas). LNG has been an international business since the 1960s. What is developing now is a much larger, more global, more flexible, more traded gas business.

Four factors are bringing this about. The first is the drive to monetise gas reserves, which, on a cumulative basis, are of the same scale as oil. Technology is the second factor, enabling costs for LNG to be brought down by 30 per cent or more over the last seven years. The third is the embracing of natural gas for generating electricity in growing economies. And the fourth is the flattening out of the North American natural gas supply at a time when demand is going to continue to rise (to meet the needs of the new natural gas-fired power plants).

As a result, natural gas markets will become more connected, with prices in different parts of the world influencing each other. North America, until recently a region unto itself, will become integrated in this global market. By 2020, the United States could be getting 30 per cent of its total gas from LNG. China will also be a big importer. The industry will be investing hundreds of billions of dollars to continue to build this global business.

Globalisation is driving energy markets. That means expanding markets for oil and natural gas. But this also means that the industry faces an enormous “growth challenge” – to keep ahead of demand. That is the issue now preoccupying the industry worldwide.

But another kind of challenge also comes with globalisation. This is the reaction against globalisation – in the Middle East, the former Soviet Union or Latin America. This reaction can be encountered in many different forms – fundamentalism, resurgent

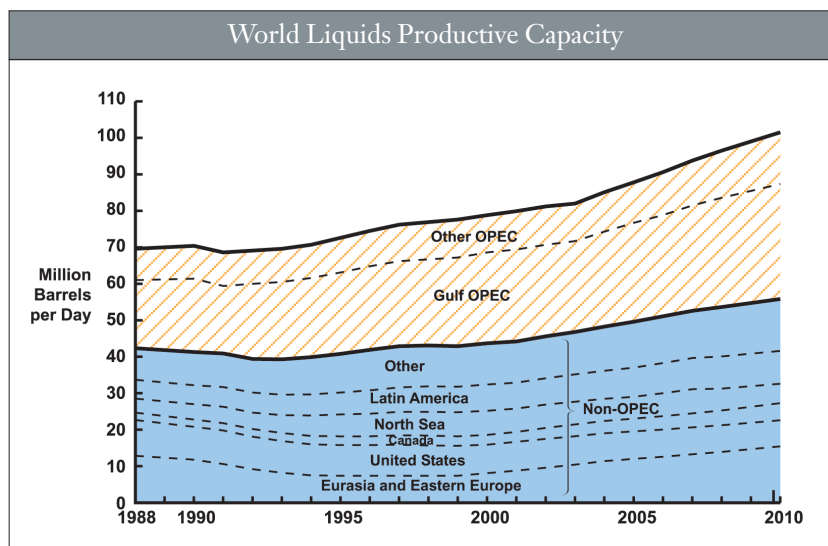
nationalism, or renewed statism. The reaction raises questions that will be central to the future of the oil industry: What will be the access to resources? What will be the pace of investment? How durable will contracts be, or will the “obsolescing bargain” come to the fore again? And how is security going to be assured for the entire supply chain?

These are critical questions, and the answers will do much to determine the ability of the industry to respond to the growth challenge. Putting the emphasis on these factors, as we do, provides a different perspective from those who insist that the current market pressures signify “peak oil” or even “the end of oil.” High prices are fuelling these fears, which are getting a great deal of attention. But these fears are underestimating the responsiveness and flexibility of markets and the impact of technology.

Of course, it takes time for a market to respond. In the meantime, a global market this tight is certainly vulnerable to disruptions. That point needs to be underlined. The 1970s was the era of the supply shocks. But it is often not remembered that the preconditions for the 1973 crisis were created by a very tight world oil market – the product of a synchronised global economic boom in the early 1970s. The triggers that could have turned today’s tight market into more of a crisis could range from social or political conflict to sabotage and terrorism to weather and physical accidents. As it turned out, it was the weather – the category five Hurricane Katrina.

But disruption is not the same thing as “running out of oil.” Supply and demand move in cycles. Our field-by-field analysis in *Worldwide Liquids Capacity Outlook to 2010* – led by my colleagues Peter Jackson and Robert Esser – identifies about 16 million barrels of net new production capacity that will come on line between 2004 and 2010 – upwards of a 20 per cent increase in capacity. CERA has been conducting this analysis for many years. With CERA now part of the upstream data and information company IHS Energy, we have augmented our own analysis and data bases with IHS’ unique and extensive upstream data bases, further solidifying the conclusions.

Much of this new capacity is already in progress, and much of it was sanctioned on much lower price expectations. This increase of 16 million barrels per day will likely exceed growth in demand by some margin, with an impact on price that can be anticipated. Our team assumes some delays and disappointments, and factors in decline curves. This outlook does foresee an increasing role for what are now “non-traditional oils” – ultra-deep water, oil sands, natural gas liquids and condensates. As we see it, the share of “non-trationals” will grow from less than 10 per



cent in 1990 to 30 per cent by 2010. And that is a track that will grow only more important.

The current pessimism about future supplies seems to assume that technology has largely run its course. That reminds one of the 1970s, another era of supply pessimism, when the industry was supposed to fall off the “oil mountain.” The impact of new technologies was greatly underestimated, and perhaps understandably so, since they were not very visible. Some of the technologies that will expand supply are clear today. The panoply of information technologies that we call DOFF – the “digital oil field of the future” – could expand reserves by 100 billion barrels plus. That is equivalent (on today’s estimates) of another Iraq.

We are pretty confident about this 16 million barrels per day net increment in terms of investment, projects and activity. What it does not do is take into account unanticipated – or semi-anticipated – turmoil or significant changes in market conditions. In other words, in our view, the bigger risks are not “below ground,” but “above ground.” And one can certainly make a list of the half-dozen potential trouble spots where brewing problems could turn to a boil, adversely affecting supplies.

“But,” some may say, “look at the reserve disclosures that companies make in their annual reporting under the rules of the US Securities and Exchange Commission (SEC). Don’t they show that companies are failing to add new supplies of oil and natural gas?” As companies have privatised and capital markets have globalised, the SEC has become a de facto global regulator, and many non-US domiciled companies are SEC registrants, along with US companies.

Yet the growing pervasiveness of the SEC disclosure system has been matched by, in many cases, decreasing relevance for investor information or energy security (its original purpose). Increasingly, the

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disclosures of “proven reserves” are diverging from the actual resource base of the companies and their investment spending – leading to very conservative estimates of future reserves. The current disclosure system continues to be based on what we call “the 1978 System.” That is, it is based upon industry practices and technology that are 30 years old. In the late 1970s, when the rules were promulgated, the “frontier” for off-shore oil was 600 feet of water. Today, it is in excess of 10,000 feet. The rules and their implementation have not been updated in a significant way, and thus they do not take into account the profound changes in technology, project anatomies and geography – and markets. (When the system was instituted, prices were controlled in the United States, and the current global commodity markets in oil – and, increasingly, in natural gas – were not anticipated). The current rules also diverge from current standard technical practices in the oil and gas industry. As a result, the SEC-mandated disclosures may diverge from where companies are investing and in what their future resources will be, and thus are not the good guide that might be hoped to the future resource base. In short, the rules need to be modernised.

If growth is the challenge, what is the industry’s agenda? Step up investment in productive ways – all the more challenging in itself in the face of rising costs.

Expand and modernise infrastructure throughout the system. There needs to be a particular emphasis on increasing the capacity to refine middle distillates to meet the shift to diesel cars in Europe, rising demand in China, and growing jet travel.

Attend to the industry’s demography. The industry lost a middle generation during the era of price declines and retrenchment, and the loss of that missing generation is being felt during the upswing. In

addition, it has to attract a younger generation that in some cases is sceptical of an industry that could retrench again. Also, the new cohorts will likely be of much more diverse nationalities than in the past.

The other great resource of the industry, in addition to hydrocarbons and its people, is technology. The wider public may not understand what a technologically-driven business this industry is, but that is basic to its character. In order to meet the challenge of growth, it will need to continue to press for technological advances. And it needs to unfold along a very broad front – from exploration and production technology, to improvements in refining technology and chemistry, to greater efficiency, new technologies, and environmental enhancement.

Governments and companies need to attend to energy security and work together on that problem. That is made more challenging by the fact that the definition has expanded from “supply disruption” to the protection of the entire supply chain. Moreover, the dividing line in responsibilities between governments and companies is often not clear.

Globalisation – the flows of trade and investment, technology and people – is promoting higher economic growth. Yet the more successful that globalisation is, the bigger the challenge for the oil and gas industry. The industry will prove more effective in meeting this critical challenge to the degree that governments encourage markets and companies to do their job, and allow market forces to flourish. The industry will be better positioned to fuel economic growth and higher incomes around the world in a global economy that is open to investment and trade. That needs to be right at the top of the agenda, if the growth challenge is to be effectively met. The outcome will be of lasting significance for the world economy. ■

The Key Driver of Oil Demand: World Economic Growth

