LNG between feast and famine

Between now and 2012, a new wave of LNG supply will wash over markets, with Qatar accounting for half the growth as six new "mega-trains" come on stream. It will arrive just as gas demand is being hit by the economic crisis. Beyond 2012, the situation will reverse, with growth constrained by lack of new supply. The LNG industry is facing a turbulent decade.

by Alex Forbes

Long before the coach arrives at the main entrance to Ras Laffan Industrial City we can see the gas being flared. From far away it is a small orange speck. Close up it is a large ball of curling orange and yellow flame – a beacon of the achievements that Qatar has made in becoming the world's leading producer of liquefied natural gas (LNG).

Over the past decade Qatar has played a central role in turning LNG from a niche industry into a mainstream and globalising force in energy. Ras Laffan is rapidly becoming the world's largest concentration of natural gas-based industry – a seemingly endless succession of pressure vessels, pipe-racks and storage tanks, towered over by innumerable cranes. Two decades ago this was just barren desert.

Construction at Qatargas 2, Doha, Qatar. Photo by: Qatargas

In a series of bold steps, Qatar has taken the LNG-concept to its logical conclusion, employing economies of scale at all stages of the value chain to make its gas competitive. Here in Ras Laffan we are witnessing the birth of the first LNG mega-train, one of six new natural gas liquefaction facilities, each 50% larger than those operating anywhere else. As they come on stream over the next two years they will make this small emirate an ever-more-influential force in the business of natural gas. Qatar's existing LNG production capacity from eight trains is 30.7 million tonnes per annum (Mtpa); the six new mega-trains will increase that by 46.8 Mtpa to over 77 Mtpa – or almost 100 billion m3, more than total gas demand in the UK, the largest European gas market. This will make Qatar the world's dominant LNG supplier with a market share of between a quarter and one-third.

The mega-train, inaugurated on April 6th, is one of two that will make up the liquefaction facilities of the Qatargas 2 project – an ambitious venture to export 15.6 Mtpa (around 20 Bcm per year) of Qatari gas to the United Kingdom, about a fifth of UK gas consumption. Along with the two liquefaction trains, this $13 billion venture – the world's first-ever fully integrated LNG project – includes a fleet of 14 state-of-the art LNG ships and Europe's largest LNG receiving terminal, the South Hook project at the port of Milford Haven in Wales.

'Today we are very proud of how we decided a few years ago to change the LNG industry, cutting costs by enlarging the trains and the ships,' declared the nation's energy minister Abdullah bin Hamad Al-Attiyah. 'We are building six trains, and of our six children, the first one has come.'

It has not been the easiest of births. With so much development going on in Qatar, resource constraints led to significant delays. The first mega-train is about 18 months behind schedule. 'We have been trying to push the contractors,' says Al-Attiyah. 'Over the last three or four years, in my opinion, they took on too many projects worldwide and they faced a shortage of human resources.' He maintains that Qatar is still on track to complete all the mega-trains by the end of 2010.

This view is supported by Thierry Pilenko, chief executive of Technip, one of the two partners in the Chiyoda Technip Joint Venture (CTJV) that is acting as EPC contractor for all six mega-trains. He too maintains that the 2010 target remains 'tight but achievable. We learned a lot with the first one in terms of start-up and commissioning.' Pilenko says negotiations with the stakeholders have been going well: 'We have just finalised the agreement on the third project – that took a year. Last year at this stage we had an agreement on the first two projects, Qatargas 2 and RasGas 3. Now we have an agreement on Qatargas 3 and 4. Our view on the economics of the projects hasn't changed.'

Cycle

But since the Qatargas 2 project was proposed the world has changed and it is not clear that the UK will need anything like this much LNG to be imported from Qatar in the short-to-medium term. Several new import pipelines have been commissioned to bring gas into the UK market from Norway and the Netherlands. Some of the gas from the second train has already been allocated to other markets by Total, but it is still hard to see how the UK will be able to

> *'We like to please our customers but not at our own detriment'*

Development of Doha's West Bay.   Photo by: Walter Bibikow/Corbis

absorb the remaining Qatargas 2 volumes without prices being pushed to very low levels.

Al-Attiyah insists that he is not concerned by the looming supply glut. 'So far we are not seeing in Qatar any problems for marketing because all our quantities are sold out on long-term take-or-pay contracts. And we are diversifying our customers, from Asia to Europe and North America, including Mexico. We are managing marketing with our partners – Shell, ExxonMobil, ConocoPhillips, Total and others. One of my problems is that I'm still receiving many requests from a lot of customers begging for more gas.'

On the prospect of LNG prices falling as low as $2.50 per MMBtu this summer, only a third of what they were two years ago, Al-Attiyah says: 'We have to live with the prices. The price is a cycle, it goes up and down. People have short memories. Ten years ago the price of oil was below $10 a barrel. We can cope. Demand will come back again. No one can live without energy.'

The LNG industry has been growing rapidly for three decades. Between 1980 and 2008 average annual growth was an impressive 7.4%. Now thanks to a flurry of final investment decisions (FIDs) on projects that took place between 2002 and 2005, growth up to 2012 is projected to be an astonishing 12% per year, according to figures presented at the recent Doha Natural Gas Conference by independent consultant Andy Flower – a well-known figure in the industry. Meanwhile, demand for energy is weakening, notably in the traditional LNG markets of Asia and Europe. 'We're certainly into an unexpected time for the LNG business,' says Flower. 'We are entering a year which will probably see 20-25 million tonnes of extra supply in the market when the demand in markets in Asia and Europe will probably be at least 10 million tonnes less than last year. So there will be a lot of surplus LNG around. The question then is: which markets can absorb it?'

The years from 2002 to 2005 were a boom time for the LNG industry. In addition to the Qatari mega-trains, projects totalling around 60 Mtpa were sanctioned in Russia (Sakhalin Energy), Indonesia (Tangguh), Australia (Darwin and North-West Shelf), Nigeria (NLNG), Yemen, Oman (Qalhat), Egypt (ELNG) and Equatorial Guinea. Much of this capacity will be coming on stream between now and 2012, along with some of the projects that have received FID since the start of 2006.

By contrast, the years from 2006 to 2008 were lean times. Only five supply projects were sanctioned – Peru LNG, Pluto in Australia, the Skikda re-build and Arzew 3 in Algeria, and Angola LNG – a total of 23 Mtpa, representing an annual average of less than 8 Mtpa. As it takes around four years for a project to go from FID to production, it is clear that supply starts to look increasingly tight from 2012 onwards.

Moreover, no projects have yet been sanctioned in 2009 , because of the asymmetry that has developed between consumer prices and the costs of constructing projects. According to figures from Gas Strategies, a consultancy, there will be a rapid build-up of supply between now and 2012. Beyond 2012 there is a plateau.

Of the 98 Mtpa of potential projects, the International Energy Agency (IEA) estimates that only around 25 Mtpa are likely to come to fruition before 2015. And the way things are going even that could turn out to be over-optimistic.

In Doha, Flower posed the question: 'Where is the next Qatar that can drive the growth in the supply of LNG beyond 2013? It's difficult to see where it's going to come from.' By 2020, says Flower, the LNG supply shortfall is likely to be at least 80 Mtpa and could be as high as 120 Mtpa.

Next Qatar

There are some who believe that the 'next Qatar' may well turn out to be . . . Qatar. Even at the prodigious gas production rates that Qatar has already committed to, its reserves would last for 100 years. So, in theory, it could double its output and still continue for 50 years.

However, those who share this view are likely to be disappointed. The moratorium that Qatar imposed in 2005 on further gas development from its North Field has turned out to be a 'blessing in disguise', says Dr. Ibrahim B. Ibrahim, a man in a good position to know. Syrian by birth, he has been the Emir's economic advisor for many years. Among the numerous positions he holds in Qatar he is secretary-general of the Development Planning Secretariat, vice-chairman of RasGas, one of Qatar's two LNG companies, and chairman of the RasGas LNG marketing committee.

Pointing to the 2030 Vision document published last year by the Emir, which set a new policy agenda for the country, Ibrahim notes that excessively quick economic growth has brought problems as well as benefits and that the emphasis now is on development that will be sustainable in the long term. 'Some of the things that happened shouldn't have happened,' he says, 'and we want to avoid repeating some of the mishaps that happened. For instance, fast economic growth created a lot of problems: inflation, inefficiency, delays. We want to make sure that economic growth matches the absorptive capacity of the country.'

'Where's the next Qatar that can drive growth beyond 2013?'

One of the less desirable effects of rampant economic growth has been on demographics. Qatar's expatriate population has grown so rapidly that of the 1.5 million people in the country only around 300,000 are Qataris, which puts pressure on cultural development and traditions. Much of the expatriate population is unskilled labour. It has also led to a gender gap because most are young males. 'We want to follow a development path that doesn't depend on labour intensity but on technology and capital', says Ibrahim. 'And we want to increase the participation of the Qatari labour force, by training and through the role of women. We don't want to depend on oil and gas forever. By 2030 we want to be able to transform a lot of the exhaustible resources into renewable resources.'

So what about the North Field moratorium? 'Most people will not like what I have to say,' replies Ibrahim. 'We don't need more gas development than we will be producing by 2012. It's sufficient for our development – at any oil price and any gas price. We like to please our customers but not at our own detriment.' ■

Who is Abdullah bin Hamad Al-Attiyah?

His Excellency Abdullah bin Hamad Al-Attiyah, Minister of Energy and Industry of Qatar, has become a familiar figure on the world energy stage, as one of the better-known OPEC ministers. In the 1990s, his pronouncements on Qatar's LNG aspirations were taken with a pinch of – respectful – salt, but the small emirate's achievements have far surpassed expectations – and much of the credit goes to him. He became minister in 1992, two years before the Emir assumed power. He is one of a small group of people that controls Qatar's energy business, which includes the Emir, finance minister Yousef Kamal, the Emir's adviser Dr Ibrahim B. Ibrahim, the heads of the major LNG companies, Faisal Al Suwaidi at Qatargas and Hamad Rashid Al Mohannadi at RasGas, and the ceo of ExxonMobil, Rex Tillerson. Al-Attiyah, who also heads Qatar Petroleum, was recently promoted to Deputy Prime Minister.

Photo by: Alex Forbes