



Some tanker arithmetic relating to LNG supply

Posted by [Heading Out](#) on January 26, 2006 - 12:39am

Topic: [Supply/Production](#)

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I'd like to follow up a little on Dave's excellent post the other day on [LNG supplies](#). He pointed out there, that US production will likely see a shortfall relative to demand of 5 billion cubic feet/day (Bcf/d) by 2010, and around 26 Bcf/d by 2020, against current US production numbers of around 75 Bcf/d. He also notes that a typical LNG facility has a capacity of around 1 Bcf/d, and we currently have four of them. Further, as he notes, about 1 Bcf/d can be regasified in the Bahamas and piped into South Florida.

One of his underlying points, however, is that, even though we might be able to establish enough capacity to regasify the LNG, to ensure a reliable, and even available supply, we are going to need to have long-term delivery contracts in place for both the gas itself, and for the vessels to move it in. The UK has, for example, plans to use 8 vessels in bringing [LNG from Qatar](#). As the OGJ noted

As of August 2005, the world fleet of conventional LNG ships stood at 180 ships with total cargo capacity of about 22 million cu m. There were also more than 100 firm orders and under construction with a total of about 16 million cu m. These included eight large LNG carriers to be deployed between Qatargas II and South Hook LNG terminal, UK.

The charter rate is quoted as being around \$80,000 a day - however, larger vessels, say 50% larger than current ones, over longer distances (say 7,000 miles) might anticipate this being about 10% less.

I mention this because China has [just launched](#) the first of their domestically build LNG carriers, with a fleet of 8 currently anticipated and a rumor of orders for at least 12 more being in the offing. China anticipates having 10 terminals by 2010 out of a planned total of perhaps 16.

At this stage it might be useful to quote from a paper on the subject of LNG terminal [design](#) (a pdf file)

A typical facility will have tank storage capacity for 2 to 3 ships cargoes or about 5 to 8 bcf at standard conditions (250,000 to 380,000 cu. m in liquid form). The terminal will always have an LNG inventory in its storage tanks to keep everything cooled down. Typically the high-pressure pumps and vaporizers are the units limiting send-out as the facility can receive a cargo in 24 hours but takes from 3 to 6 days to discharge that volume as gas to the pipelines. There are four LNG terminals in the U.S. of this design, one of which is being refurbished. All have announced expansion plans but collectively the expanded terminals fall far short of the projected imports of LNG by 2020.

The key fact to note is that 1 cu m of LNG will convert to 20,000 cu ft of NG. Inverting that, a facility that supplies 1 Bcf/d of NG will need 50,000 cu m of LNG per day or 1 carrier bringing in 150,000 cu m every three days.

Thus if we need 5 bcf a day, then we would need 5 tankers showing up every three days, or (allowing for accidents etc) say 2 a day. Handling them in Qatar is not expected to be a problem, since that port is enlarging and already shipping tankers a day to [Asia](#). It takes 40 - 45 days for tankers to get to the US from the [Gulf](#) And one would presume that it would take the same amount of time to get back. So allowing a day to load, and a day to unload, a round trip would take 82 days. That means, I believe, we would need 164 carriers. Unfortunately I would doubt that this many are going to be available, since a number of other folk have an interest in LNG supplies at the same time we do. Both [China](#) and [India](#) have been hosting King Abdullah and hoping to strengthen the opportunity for future energy supplies.

Along the lines of Dave's piece, therefore, one does wonder how much gas we have already got our bids in for over the next five years, and how many tankers have we actually got plans to charter. For as he said, expecting to be able to do this with a handful of money at the last minute is not going to work.



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