The LNG Threat

Liquefied Natural Gas: A Growing Economic Target?

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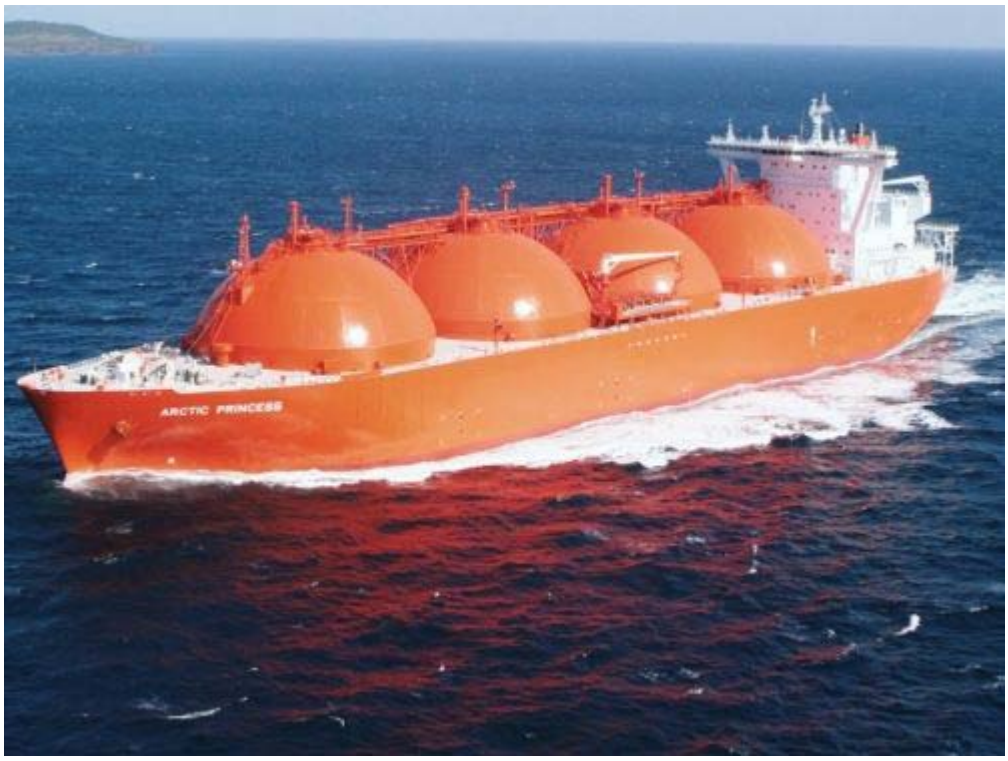
Cutting Edge Contributor



LNG tanker at sea

Liquefied Natural Gas (LNG) is more than just a potential weapon of mass destruction in the right locale. It also offers terrorists an awesome economic target wherever in the world it can be found--even on the high seas.

During a March 21, 2007 hearing, Congressman Bennie G. Thompson, of the second district of Mississippi, observed that although it is important to consider the dangers of LNG, it is equally important to try to assess the economic impacts that an LNG incident might incur. "…Terrorists would just as well like to keep a port out of business for a week or two and that would be an absolutely significant incident… So, I think part of our challenge is how we look at all the consequences associated with the handling of LNG. Clearly, we want to know the hazards initially, but we also want to look at economic conditions that relate to it."

The variables that would affect the economic impact are too numerous to make such a predetermined calculation possible. Additionally, as time passes and the role of LNG grows worldwide, the potential impact of a terrorist attack on these tankers or terminals increases. According to the Energy Information Administration (EIA), LNG imports comprised only three percent of overall natural gas consumption in the U.S. in 2005. Energy analysts expect LNG imports into the U.S. to increase by 8.7 percent annually through 2030. Conversely, natural gas piped in from Canada, which is the number one source of imported natural gas to the U.S., is expected to decrease by 4.6 percent. At this rate, by 2030, approximately 17 percent of all natural gas required to meet U.S. consumption needs, will be supplied via LNG imports.

The 17 percent figure is merely an estimated EIA projection based on analysis of numerous trends and variables. The EIA came up with both a low and high LNG estimate forecast through 2030. Variables that contribute to the calculation of a “low LNG” estimate include obstacles, such the denial of construction on a proposed LNG terminal.

A proposed LNG terminal in Mobile Bay, Alabama, for example, did not come to fruition due to its lack of citizen and local government support. Another variable is the discovery of new natural gas fields, which would increase the availability of natural gas imports via pipeline and potentially decrease the need for building new LNG terminals. Examples of variables that would contribute to a high LNG estimate include a shift in Canada’s natural gas export to a different end-user, possible environmental factors putting a halt to certain domestic natural gas production, and the successful permitting and construction of LNG terminals in the U.S. As of March 2006, there were five LNG terminals operating in North America. These five terminals had a peak send-out capacity of 5.24 billion cubic feet per day. There were, however, 17 proposed LNG import terminals in North America that government regulators had already approved. If these terminals proceed through construction as planned, they will have the capacity to send out an estimated 24.2 billion cubic feet per day.

In addition to these 17 approved terminals, various energy companies are proposing some 25 other LNG projects in Canada, the U.S. and Mexico. These 25 projects will have a send-out capacity of 27.75 billion cubic feet per day.31 To offer a point of comparison, in 2006 the U.S. consumed an average of approximately 60 billion cubic feet of natural gas per day. The EIA estimated that by 2030, LNG could make up as little as seven percent or as much as 33 percent of the total natural gas consumed in the U.S. Should the use of LNG in the U.S. follow the trend that would lead to the “high LNG” scenario, or 33 percent, then it would be reasonable to say that the probability of a terrorist attack against LNG, for economic purposes, would increase due to its greater potential economic impact. In order to stress the importance of this, the author will take the high LNG scenario.

Some of the variables required to calculate the economic impact of an LNG disaster include time of year, weather conditions, location of storage unit(s) affected, natural gas prices, location of incident and perhaps most challenging, the human emotional factor. Emotion, whether positive or negative, can sway the stock market and affect global pricing of energy and the economy. It is impossible to measure anticipated human emotion. A small scale LNG leak could cause natural gas prices to spike temporarily before returning to normal. A large-scale leak or attack that leads to human-casualties could cause prices to spike severely and not return back to their original rates. Despite the unknown outcomes of human emotion, it is critical and cannot be omitted from any potential calculation.

So far, in non-terrorist related incidents, with pipelines making up a majority of natural gas transport, impacts have been easily reversed. In the case of the 2004 Skikda disaster in which an LNG related explosion killed 27 people in Algeria, state-owned Sonatrach was able to regain its footing, although there were a number of hurdles to overcome. Two days after the explosion occurred, the media reported that Algeria had lost nearly 25 percent of its export capacity. However, European customers said they were not expecting the outage to cause them problems. Several days later, on 27 January, a Sonatrach official told World Gas Intelligence, “For our customers in Spain and Italy, filling supply gaps will not be a problem, as we can make up for the shortfall using the (Maghreb and Transmed) pipelines to Spain and Italy. Gaz de France, however, will be difficult.”

LNG from Skikda accounted for approximately eight percent of France's total imports. According to a spokeswoman for Gaz de France, the company was looking at all measures it could take to offset the lost volume. Finally, Gaz de France was able to turn to overland transport networks already in place from northern Europe to make up for the potential shortfall. Gaz de France maintains a diverse portfolio of suppliers from Norway, Algeria, Russia, the Netherlands, the United Kingdom, Nigeria and Egypt. Shortly after the Skikda blast, stock prices shot up due to a fear factor in the market. These fears were compounded by the uncertainty over how much LNG production had been affected by the blast. Some people reportedly felt that the news had affected the winter 2004 prices at the Northern Border Stock Price (NBP). These prices did settle back fairly quickly, though.

In areas such as the East Coast, where the Everett terminal is located outside of Boston Harbor, LNG is critical to the energy makeup of the region. The Everett terminal is the only terminal in the U.S. that operates at 100 percent capacity 365 days a year. It represents approximately 25 to 30 percent of the base load natural gas brought into the New England market everyday. This is due to demand outweighing available piped-in sources of natural gas. The other four remaining terminals operate at anywhere from 45 to 65 percent.

Therefore, an attack either on a tanker within the Boston Harbor or the Everett terminal itself would likely have a much greater economic impact. As piped-in natural gas supplies become less abundant and U.S. consumption rates increase, were an LNG disaster to occur in the U.S., it would have an immediate impact. Natural gas serves over 64 million customers and provides around 24 percent of all energy consumed. Not only is this energy essential for home heating, it is also increasingly used toward power generation and serves as a major feedstock for the chemical industry. Every one of these sectors could be subject to price hikes, shortened productivity and even increased dependence on foreign trade, etc.

LNG holds appeal of increasing a nation's energy security because of its fungible nature, however it could also be damaging to energy security because of the vulnerability of the extensive infrastructure required to process it. Should terrorists somehow manage to damage or destroy this infrastructure, or the ports that lead to the processing plants, it would be detrimental to those regions which have become highly dependent on LNG.

The natural gas industry has an excellent safety record. However, the 9/11 attacks have changed the threat profile. If the U.S. is to continue increasing its appetite for natural gas, it will inevitably increase its imports of LNG because Canada cannot provide enough natural gas to meet U.S. future requirements. The key question, however, is whether or not the benefits outweigh the risks and even how big the risks truly are. The most inherent problem with LNG is that despite scientists, scholars, officials and academicians conducting various high-profile studies on the safety implications of LNG, too many unknown variables and unanswered questions still exist. Experts don't agree fully on safety boundaries. Empirical data demonstrating what would happen if there were to be an attack are virtually non-existent. Because of this uncertainty, members of the public remain adamantly opposed to bringing LNG with its foreign ships and crews into their "backyards," perhaps rightly so.

More studies are needed to bring about sound conclusions and ensure the greatest possible degree of public safety, as well as to ensure the security of an important commodity. Building a terminal offshore will certainly mitigate a possible attack, as will enhanced security measures. However, despite the myriad security measures in place, it would be difficult to thwart people willing to die to carry out an attack. Attacks such as 9/11 and the bombing of the USS Cole serve as reminders that "events" many industry officials consider improbable are still possible. In fact, some people would say that in hindsight, turning passenger airliners, fully loaded with fuel, into missiles and flying them into the World Trade Center and the Pentagon is indeed probable.

While discussing a topic unrelated to LNG, Andrew Kohut, director of the Pew Research Center for the People and the Press, said, “I attended a lot of meetings, and one in February of 2001 with security experts on scenarios for asymmetric warfare, and there were only a minority of people there who thought that the United States could be endangered, seriously threatened by a non-nation state, actor or group.” Seven months later, the improbable became reality. People within the LNG industry argue vehemently about the safety of LNG.

William Cooper, Executive Director for the Center of LNG said, “The added security features for the tankers coming into port are such that a successful attack on an LNG tanker is slim to none.” Captain Scott Conway argues that LNG tankers are the safest tankers in the shipping industry. “There’s no way I’d bring my wife or child on an oil tanker, for example. However, we didn’t hesitate to bring our families on the LNG ships. That is how safe the ships were. They’re very well made.” After witnessing various experiments done on LNG and working closely with the liquid, Conway also views it as “an extremely safe, non-toxic, non-explosive cargo.” Despite these views, the debate continues, and as long as the uncertainties surrounding the safety of LNG remain unanswered, officials must continue to strive for maximum safety measures. The U.S. and other consumers of LNG should learn to manage and understand these risks in order to reach a solution that will best mitigate any possible incident. Anne Korin summed it up by saying, “We don’t know what would happen because there hasn’t been such an attack yet.” The goal should be to place a large enough buffer between tankers (and terminals) “from any dense urban areas so as to minimize appeal of the target, which lies in its potential to provide a mass casualty incident.” Finally, when it comes to LNG as an economic target, the best measure to mitigate this possibility is simply to ensure that appropriate measures are taken to keep dependency on LNG at a reasonable level.

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