

The LNG Exposure Presented by Captain William G. Schubert

Background

The LNG industry faces an unprecedented opportunity to emerge as the second global energy business, after oil. The current worldwide investment in the emerging LNG expansion is estimated at \$65 billion with the investment in new construction for LNG vessels accounting for approximately \$21 billion.

Domestic gas production in the United States and Canada is declining at the same time as demand for gas is increasing. The recent impact of the hurricanes on the natural gas production in the Gulf of Mexico is a vivid example of the need for alternative supplies of gas to supplement our natural gas production. The Chairman of the Federal Energy Regulatory Commission (FERC) recently stated that LNG imports will need to increase from the current 3% of U.S. gas consumption to 25% to meet projected domestic gas demand by the year 2020. FERC also estimates that the United States will consume 25% of the LNG worldwide production by 2010. On April 12, 2005, the Energy Information Agency (EIA) released their 2005 midterm gas projections and estimated that LNG imports will need to increase to 28% of our domestic gas consumption by the year 2025.

To facilitate the rapid growth in demand for LNG imports, the U.S. LNG terminal receiving capacity will require significant expansion. Currently, there are only 5 operational LNG receiving terminals in the United States. As of August 22, 2005, there are also 14 LNG terminals that have been approved by MARAD and FERC for new construction or the expansion of existing terminals (2 offshore, and 12 land based). All but one of the approved new LNG terminals are in the Gulf of Mexico or the Bahamas. There are an additional 30 proposed LNG terminals in the United States that are in various phases of development (8 offshore and 22 land based). However, 18 of the proposed LNG terminals are located on the U.S. East and West coasts and are experiencing strong local and state opposition. For these proposed new terminals to move forward, the local and state concerns related to security, safety, and environment must be adequately addressed. There are an additional 4 proposed deep water port applications located in the Gulf of Mexico which are currently on hold pending further evaluation of the environmental impact of open rack vaporization systems. In addition, there are 7 terminals in Canada and 8 terminals in Mexico that are either approved or are in various phases of development. These terminals may also be utilized to import gas via pipeline into the United States.

The latest statistics from the Society of International Gas Tanker & Terminal Operators (SIGTTO) are that there are currently 182 operating LNG vessels, and 122 LNG vessels on order. It is widely considered within the industry that nearly 400 vessels will be required by 2015 to meet transportation requirements for the known LNG development projects. Assuming FERCs and the EIAs estimates are correct that the United States will consume 25% of the worlds LNG production by 2010, there could be a demand for approximately 100 vessels (i.e. 25% of 400 vessels) for the U.S. LNG trade by 2010-2015.

Over the past 25 years the LNG industry has experienced a gradual and manageable rise in the number of LNG vessels, and the corresponding demand in manpower. However, the LNG shipping industry is currently facing major challenges in the areas of safety, manning, and training to manage the rapid expansion that is now underway.

According to statistics from SIGTTO, LNG shipping has enjoyed a nearly impeccable safety record over its 40 year history. It has never lost a cargo or even spilled a large volume of LNG with 45,000 loaded voyages. However, SIGTTO has noted a disturbing trend in the increased frequency of minor accidents. There are some concerns expressed within the industry that the rapid expansion of the LNG fleet may result in an even higher frequency of accidents. LNG vessels will be visiting new LNG ports on diverse trading patterns with less experienced crews which could contribute to this increased potential for accidents. Apart from the potential of an incident, we have an aging LNG fleet and that also needs to be addressed.

Furthermore, as mentioned above, the LNG fleet is projected to increase from the current 182 vessels to nearly 400 vessels by 2015. As the new tonnage is delivered and placed into service, there is projected to be a serious shortage of skilled personnel for both shipboard and shoreside LNG positions. By 2008-2009 there will be no spare capacity within the international pool of LNG trained senior level officers, and especially steam qualified engineers. In addition, there is a high demand for qualified LNG personnel for shoreside positions as LNG terminal capacity is increased. Consequently, many senior qualified shipboard officers may accept lucrative jobs ashore which may further deplete the experienced shipboard labor pool. In addition, the current manning pool is facing an age issues. For example, 68% of the EU officers are over 40. In view of the above, unless significant and urgent actions are taken by the industry to rectify the projected personnel shortage, there is a concern that LNG vessels may be manned with less experienced crews than during the previous 40 years.

With the experienced LNG labor pool depleted, vessel operating companies and owner/operators will be required to recruit and cross-train mariners from other sectors of the industry. However, one of the major international LNG training providers has estimated the total cost to pre-qualify train and certify a complete crew (from outside LNG shipping) at approximately \$750,000 per ship at vessel commissioning, with an additional \$100,000 per year to maintain training and service standards. Concerns have been expressed that some of the new LNG operators entering the trade have underestimated the true cost and time to properly cross-train mariners from other segments of the industry. Some established operators within the industry have alleged that the current low charter rates cannot sustain the level of training required to maintain the high level of service and safety record.

The convergence of all of these factors requires more than business as usual or accepting second best in LNG vessel crewing. A major accident or catastrophic incident would certainly produce an instant public backlash against the LNG industry. There is no question that the robust expansion of LNG terminal capacity within the United States would be brought to a complete standstill and, at best, face very lengthy delays if a major accident or incident were to occur.

With these considerations in mind, there should be widespread agreement that the phrase made famous at the time of Apollo 13 failure is not an option applies with equal relevance to LNG vessel crewing.

Concluding Remarks

I have painted an unvarnished assessment of the state of the LNG, but let me conclude on a more positive note by sharing some of my own personal views related to LNG crewing issues.

First while serving as the Maritime Administrator, and now in private industry, I have visited with many of the principle players within the LNG industry. Based on these discussions, I am confident that the industry is keenly aware of the challenges described above, and will be in a position to respond to the challenges. The industry has acted responsively in the past, and I believe they will act responsively in the future.

In particular, I would like to commend the efforts of the Center for LNG (CLNG) for promoting responsible actions to address these challenges. I also believe that SIGGTO has made great progress in what they refer to as their training initiative which will establish standards for LNG training. The SIGGTO training initiative is also supported by CNLG.

At present, there are differing training standards from charterers, flag states, operators etc. To address this lack of continuity, the SIGGTO training initiative will establish industry accepted minimum operational standards for training of all ten officer ranks onboard an LNG tanker. The SIGGTO training initiative is now almost complete and was presented to their General Purposes Committee on the September 27th. They are intending to present the standards to the IMO in January 2006.

I would like to make it clear that these standards will not be **Mandatory** and will not replace the requirements of the Flag States. The new standards should be considered Best Practice minimum

operating standards. According to SIGGTO, several charterers and oil majors have indicated to the secretariat of the IMO that they will include in future charter parties that all officers are to be trained to the new SIGGTO standards. The working groups on this initiative have been drawn from the SIGTTO membership and they have received an overwhelming positive response from the members.

Finally, let me conclude by mentioning our efforts to improve LNG training in the U.S. I sincerely believe that the U.S. maritime labor pool may eventually be in a position to help fill the gap for qualified officers.

Prior to leaving by position as Maritime Administrator, MARAD was working diligently with several of the oil majors, maritime trade schools, USMMA and State Maritime Schools, and the USCG to update our senior and entry level LNG training courses. The objective of this initiative was to provide the LNG Industry with an alternative labor pool that could help meet the expected international shortage of qualified officers in the future. However, for this initiative to become a viable option on a significant scale, I believe U.S. mariners sailing aboard LNG vessels must receive an income tax exemption similar to what is offered to most international officers sailing the world's fleet today. If these changes were made to the U.S. tax code, U.S. officers would basically receive take home pay equity with their counterparts in the international fleet.