

CURRENT STATE AND PROSPECTS OF LNG IN THE UNECE REGION

CHAPTER 4: INTEROPERABILITY AND SAFETY

Summary

LNG interchangeability and quality control requires special attention and a different approach. Because of variations in LNG quality which must be treated in receiving Terminals, analysis for interchangeability has become critical. Blending, mixing of LNG during offloading, mixing of LNG during send out and ballasting are all methods of controlling the quality of LNG so that it conforms to contractual conditions. Other features necessary for process control will have an impact on the selection of state of the art chromatographs and sampling equipment. Speed of analysis, faster interaction, reaction to an impact on the process can be more important than accuracy.

An LNG storage tank management procedure which integrates the offloading of LNG into storage tanks, blending of LNG and ballasting while taking into account the rules of interchangeability and contractual conditions has become the real challenge.

The global harmonization of traded LNG quality is unlikely, even considering the 2030 timeline, because of the different economic and political forces on different consuming nations. However, some regional harmonisation is both feasible and likely, along the lines of the regional characteristics of USA, Europe and Far East.

Therefore, because of global trading and continuing diversity of gas sources, it will probably become the norm for import Terminals to be built with quality adjustment facilities.

It is possible that for economic reasons the regional specifications will converge towards those of Europe. On the other hand, because of its geographical position and its unconventional gas production, the USA will have less incentive for internal change and probably it will adjust off-specification cargoes as necessary at import Terminals. Within Europe, the UK may agree to accept the EASEE-gas proposed quality range by 2030. However, occasional internal quality adjustments will still have to be made in most EU states (as they are for example within Spain), as this range is too wide for any one given set of appliances to accommodate without burner adjustment.

Global compatibility of LNG tankers, Liquefaction Plants and Terminals would seem a long way off, within the current LNG community. Incompatibility in design appears to be directly associated with individual Terminal commercial / business drivers. The added expense to modify existing Terminals to bring them into alignment with newer LNG Terminal design would seem impractical. However, as business opportunities and contracts change, there may be a chance for Terminals to come into design alignment over time, on a Terminal by Terminal basis.

LNG Terminal design globally utilise recognized industry guidelines such as the Permanent International Association of Navigation Congress (PIANC) which by its

application will assist for future Terminal compatibility studies. Consideration of recommendations such as the Optimal Lay-Out and Dimensions for the adjustments to large ships of maritime fairways, shallow areas, sea straits and maritime waterways, would assist the LNG industry in moving toward increased ship-shore compatibility.

However while PIANC may be referred to these guidelines on Terminal design, must still accommodate considerations as to the Geographical location, prevailing conditions such as: weather, current, tidal & river experiences (over 100's of years), the commercial drivers as to the size of the Terminal and the type of vessels they want to attract, planning permissions, local Laws / Legislation and whether the Terminal is expanding an existing installation or a complete new Terminal.

As can be appreciated with these variances applied to every project it will be difficult to standardise all aspects for compatibility, however industry has evolved sufficiently to standardise many aspects of the Terminal design.

Natural gas remains one of the safest, cleanest, most convenient and efficient base-load fuels available to mankind. This is a huge incentive for technological evolution to meet the challenges of its increasingly global availability, which can be expected to continue drawing new talent into the natural gas industry. In the opinion of the LNG Committee of the International Gas Union (IGU) this will also drive importing countries to develop a legislative framework that ensures secure and competitive access to gas, notably in the form of LNG.