

# FACT SHEET ON TECHNICAL REFERENCE 56 FOR LIQUEFIED NATURAL GAS (LNG) BUNKERING

## Background

With the shipping industry actively looking at solutions to meet more stringent regulatory requirements such as the announcement by the International Maritime Organization (IMO) to cap the sulphur content of marine fuel at 0.5% from 2020, Singapore has taken steps to provide cleaner, alternative sources of fuel such as LNG. The Technical Reference (TR) 56 for LNG Bunkering has been developed to support the industry in Singapore as there are no comprehensive standard guidelines for LNG bunkering procedures in Singapore.

## Users of TR 56

TR56 is applicable to bunkering of both ocean-going vessels and harbour craft. Users of this TR include all stakeholders involved in the LNG bunkering supply chain such as licensed LNG bunker suppliers, LNG-fuelled receiving vessels, ship owners/operators, training institutions, and third party agencies such as consultants, classification societies.

## Scope of TR 56

The technical reference covers LNG delivery from LNG bunkering facilities (i.e. trucking, shore, terminal, shipping and ISO tankers lifting facilities) to receiving ships through four modes of transfer (truck-to-ship, shore-to-ship, ship-to-ship and cassette bunkering<sup>1</sup>). TR 56 covers the following areas:

### Part 1: General introduction

- Provides the list of terms and definitions for this technical reference. It also includes an introduction to the properties of LNG

### Part 2: Requirements for custody transfer

- Specifies the custody transfer requirements for LNG bunkering including quality and quantity measurements for truck to ship
- Ensures consistency in the LNG quality provided to the receiving vessels for optimisation of gas engine

### Part 3: Procedures and safety distances

- Covers operational procedures for LNG bunkering operations in Singapore.
- Ensures safe, reliable and efficient LNG bunkering operations

### Part 4: Competency requirements for personnel

- Covers competencies and knowledge required by personnel (Management, Operation, Support and Emergency) involved in LNG bunkering operations
- Provides guidance on safe handling and transfer of LNG

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<sup>1</sup> Cassette bunkering is bunkering of LNG in LNG intermodal containers which are manufactured according to specification from the International Organization for Standardization (ISO) and used for intermodal transport of freight.

- Specifies the training required to achieve the requirements set out in this standard

## **Benefits of TR56**

- Maximises operational efficiency

TR 56 highlights the hazards and risks associated with LNG bunkering operations and provides guidance on safe and reliable procedures to carry out LNG bunkering. It will allow all players in the LNG bunkering space to follow a uniformed standard set of good practices thereby enhancing operational efficiency. It will also guide the development of competencies of LNG bunkering personnel to ensure they are fully equipped and avoid downtime due to accidents. The standard will be of great benefit to both the LNG bunker suppliers and the ship operators.

- Ensures trust & transparency

The custody transfer requirements provide a fair basis for custody transfer between the LNG bunker supplier and LNG bunker buyer.

- Mitigates health and safety risks.

LNG is hazardous in nature and is a cryogenic liquid. As the local bunkering industry has no experience in handling LNG, TR 56, as a new standard, provides guidance on health and safety hazards of LNG, with a view to mitigate these risks.

- Supports environment sustainability

With the shipping industry working together towards a sustainable maritime transportation system for the future, more stringent international environmental regulations have been put in place. Post 2020, ships have to use fuels with sulphur content lower than 0.5%. LNG as a fuel produces lower carbon emissions, almost zero sulphur emissions and lower particulate matter and is one of the fuel options that global shipping is considering to use. TR 56 will guide LNG bunkering operations and will be essential to the shipping industry, as it adopts LNG as a bunker fuel.

- Helps to capture new growth opportunities for the bunkering industry

TR 56 will support the development of Singapore as an LNG bunkering hub to support Singapore's position as premier bunkering hub. This brings about two key benefits – (1) Raising Singapore's international image and standing in the bunkering space and (2) Supports the growth of the LNG spot trading market in Singapore and related sectors like oil & gas.

## **Implementation of TR 56**

Maritime and Port Authority (MPA) is the implementing authority for TR 56. TR 56 will be used for MPA's LNG bunkering pilot programme to guide the implementation of operational protocols by licensed LNG bunkering suppliers thereby helping the

industry gain operational experience in LNG bunkering. Training institutes, such as the Singapore Maritime Academy, will develop training programmes based on the requirements detailed in this TR to develop skills and knowledge of LNG bunkering personnel.

SPRING will also work with industry stakeholders to develop the necessary accreditation scheme and conformity assessment schemes, and provide a range of assistance to SMEs in areas such as training, consultancy, certification and funding to support the LNG bunkering industry in adopting TR 56.

### **Stakeholder involvement in the development of TR 56**

The national Technical Committee (TC) on LNG Bunkering appointed three Working Groups (WGs) to develop TR 56 in consultation with stakeholders from the industry, government agencies, research institutes, testing laboratories and other organisations.

The three WGs comprise 40 expert members includes representatives from:

- Singapore Shipping Association (SSA)
- International Bunker Industry Association (IBIA)
- National Metrology Centre (NMC)
- SPRING Singapore
- Maritime and Port Authority of Singapore (MPA)
- Ministry of Manpower (MOM)
- Singapore Civil Defence Force (SCDF)
- Classification Societies
- LNG bunker suppliers
- LNG terminal operator, Singapore LNG
- LNG carriers
- Testing laboratories
- Surveying companies
- Engine manufacturers and equipment vendors
- Cargo containment companies
- Engineering services companies
- Ship builders and owners

### **Purchase of TR 56**

The standard is available for purchase from the Singapore Standards eShop at [www.singaporestandardseshop.sg](http://www.singaporestandardseshop.sg).