

LNG Bunkering in Japan

Ministry of Land, Infrastructure, Transport and Tourism
Ports and Harbours Bureau
Japan
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“Strategy for LNG Market Development” (May 2, 2016, Ministry of Economy, Trade and Industry)

6. Actions

(1) Enhancement of LNG’s tradability

iii. Increasing new demand for gas and LNG domestically and internationally

METI will endeavor to **promote the introduction of** co-generation systems, fuel cells, LNG-fueled trucks, **LNG bunkering, etc., in collaboration with The Ministry of Land, Infrastructure, Transport and Tourism** and other related parties.

“Basic Policy on Economic and Fiscal Management and Reform 2017” (June 9, 2017, Cabinet Decision)

Chapter 2 Priority issues for the expansion of a virtuous cycle of growth and distribution and for mid- to long-term development

4. Regional reinvigoration, support for small and medium enterprises and small-scale entrepreneurs

(4) Regional revitalization

1) Initiatives for regional revitalization

Regional economies will be boosted by the reinvigoration of maritime clusters, the strengthening of harbors which underpin industry, **the formation of LNG bunkering hubs**.

“Outline of the Comprehensive Logistics Policy”(2017–2020)” (July 28, 2017, Cabinet Decision)

II Current situation and issues

(8) Responding to global environmental problems

Regarding the supply and utilization of LNG with cleaner emissions, as the world’s top LNG importer, Japanese government is responsible for **the development of LNG bunkering hubs and promotion of LNG-fuelled ships**.

Master Plan for the Port of Yokohama



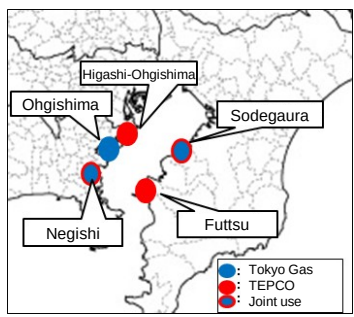
The Steering committee for LNG bunkering at the port of Yokohama

Period:
From June to December 2016

- List of Members:
- Tokyo Gas co., Ltd
 - Nippon Yusen Kabushiki Kaisha (NYK Line)
 - Yokohama Kawasaki International Port co., Ltd
 - City of Yokohama
 - Agency for Natural Resources and Energy, METI
 - Ports and Harbours Bureau, MLIT (**Organizer**)
 - Maritime Bureau, MLIT
 - Japan Coast Guard

Advantages of the Port of Yokohama

- Existing infrastructure
- Experience in the operation of LNG bunkering
- Geographical Advantage
- Position in National Container Port Policy



LNG terminals in the Tokyo bay

Roadmap

Phase I (started)	<u>Optimization of “Truck to Ship” bunkering</u> The optimization has been realized by approximating the LNG fueled ship and the track. (since November 2016)  Truck to Ship bunkering
Phase II (2020)	<u>Introduction of “Ship to Ship” bunkering</u> Introduce a LNG bunkering ship, utilizing the Sodegaura terminal. 【Required facilities】 • LNG bunkering ship • Improvement of Sodegaura Terminal  Image of “Ship to Ship” bunkering to a cruise ship
Phase III (After the demand reaches a certain level)	<u>Strengthen “Ship to Ship” bunkering</u> Strengthen the bunkering capability utilizing a LNG terminal in the Port of Yokohama. 【 Required facilities 】 • 2nd LNG bunkering ship • Improvement of LNG Terminal in Yokohama  Image of loading operation at Negishi terminal

Demand forecast

Demand forecast of LNG fuel around the port of Yokohama

Conversion rate	Annual LNG demand (ton per year)
5%	90k – 250k
10%	180k – 500k
20%	360k – 1,000k

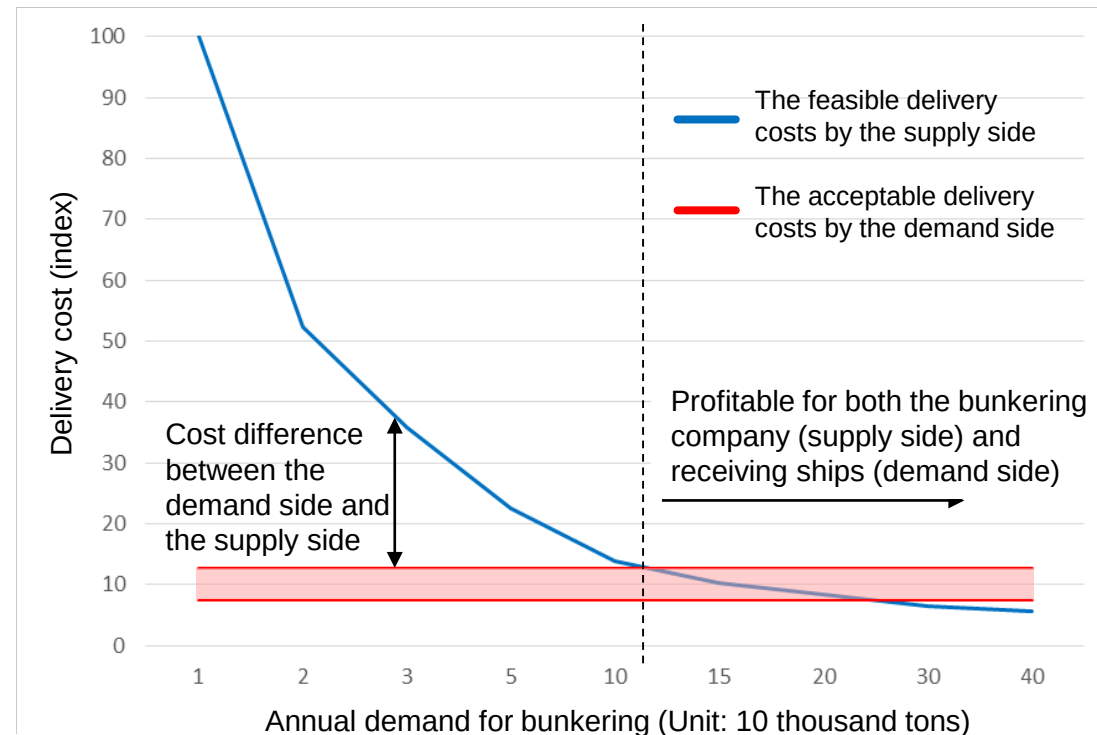
Forecast of marine fuel conversion rate from conventional fuel to LNG

Period	Conversion rate
2025–2030	5%~27%

*Forecast by various investigation institutions

However, the demand of LNG fuel will gradually increase because new LNG fuelled ships will be built mainly in the case of replacing existing ships.

An example of business profitability investigation



To ensure business profitability for LNG bunkering operation, it is necessary to secure fuel demand from 100,000 tons to 150,000 tons per year.

Major Efforts towards Its Realization

Fuel conversion of state-owned work vessels

MLIT will convert its own work vessels from the conventional fuel to the LNG fuel.

Work vessels owned by MLIT

3 Trailing Suction Hopper
Dredgers with Oil Recovery
system



12 Sea Surface Cleaning Ships



57 Patrol and Survey Boats



Budget request for FY 2018

Establish a financial support program for LNG bunkering ships, etc.

Cooperation between Singapore and Japan

MOC between MPA Singapore & MLIT



Signing Ceremony on April 3, 2017

MLIT, Ports and Harbours Bureau, Japan, signed a Memorandum of Cooperation (MOC) with Maritime and Ports Authority of Singapore.

WG for Joint Feasibility Study

Working Group



Ministry of Land, Infrastructure,
Transport and Tourism



M P A
S I N G A P O R E

MPA Singapore, MLIT Japan, and 3 Japanese shipping lines establish a working group to conduct a feasibility study on LNG bunkering between Singapore and Japan.