

Hitachi High-Tech AW Cryo, Inc.

North American LNG Market: Creating New Value Chains

JCCC Joint-Symposium, March 21st, 2016

Presenter: Marc Bolduc, President.

1. Hitachi Group Companies

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1. Hitachi Group Financials FY 2015 (Forecast)

	2015 Mid-term Plan Initial target (US GAAP)	FY2013 Result (US GAAP)	FY2014 Result (US GAAP)	FY2015 Forecast (US GAAP) (IFRS) ^{*1}	
Revenues^{*1}	10,000.0 billion yen	9,563.7 billion yen	9,761.9 billion yen	9,900.0 billion yen	9,950.0 billion yen
(Operating Income Margin) Operating Income	(Over 7%) Over 700.0 billion yen	(5.6 %) 538.2 billion yen	(6.2 %) 600.4 billion yen	(6.7 %) 660.0 billion yen	(6.8 %) 680.0 billion yen ^{*2}
(EBIT Margin) EBIT^{*3}	(Over 7%) Over 700.0 billion yen	(6.1 %) 585.6 billion yen	(5.6 %) 551.0 billion yen	(6.6 %) 650.0 billion yen	(6.2 %) 620.0 billion yen
Net Income attributable to Hitachi, Ltd. Stockholders	Over 350.0 billion yen	264.9 billion yen	241.3 billion yen	330.0 billion yen	310.0 billion yen
[Breakdown]	-	270.4 billion yen	294.0 billion yen	334.0 billion yen	314.0 billion yen
Continuing operations	-	-5.5 billion yen	-52.7 billion yen	-4.0 billion yen	-4.0 billion yen
Discontinued operations ^{*4}	-	-	-	-	-
Stockholder's Equity Ratio (Manufacturing, Service and others)	Over 30%	27.4 %	27.3 %	29 %	29 %

*1 IFRS:International Financial Reporting Standards

*2 This column shows "operating income after adjustments." (an "Adjusted Operating Income" presented as revenues less cost of sales as well as selling, general and administrative expenses)

*3 EBIT: Earnings Before Interest and Taxes (Net earnings before interest income and payment interest adjustments)

*4 A part of the thermal power generation systems business is classified as a discontinued operation in accordance with the provision of ASC 205-20, "Presentation of Financial Statements - Discontinued Operations," which was not transferred to Mitsubishi Hitachi Power Systems Co., Ltd for the business integration in the thermal power generation systems with Mitsubishi Heavy Industries, Co., Ltd. The results of the discontinued operation are reported separately from continuing operations. In line with this classification, the results of the business for the year ended March 31, 2014 are reclassified as the discontinued.

2. HTAW North American HQ in Vancouver, B.C.

■ May 2014: Joint Venture: Hitachi High-Tech AW Cryo, Inc.

Hitachi High-Tech



AIR WATER PLANT & ENGINEERING INC.



Hitachi High-Tech AW Cryo, Inc.



3. Japan Experience

Over 30 years of experience in manufacturing:

- LNG Intermodal (ISO) Container
- LNG Semi-Trailer
- LNG Stationary Tank

Market Share in Japan

60%



Transportation via Tank Trucks

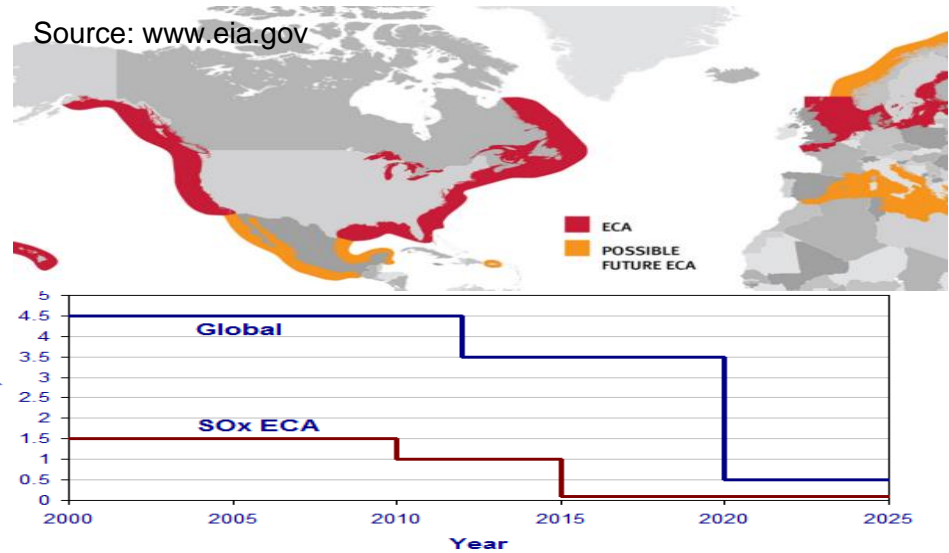
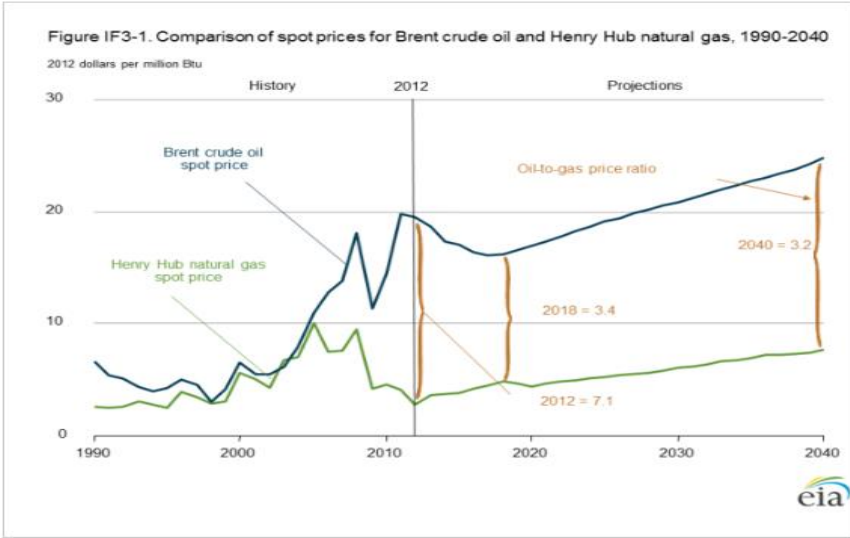


Transportation via Railways



Source: Japex

4. Natural Gas Market



- 1) Natural Gas and Oil Price Gap Maintains
- 2) Low Natural Gas Price Volatility

- 3) Greenhouse Gas Emissions Regulations for Marine Industry and On-Shore Regions



5. The Value Chain

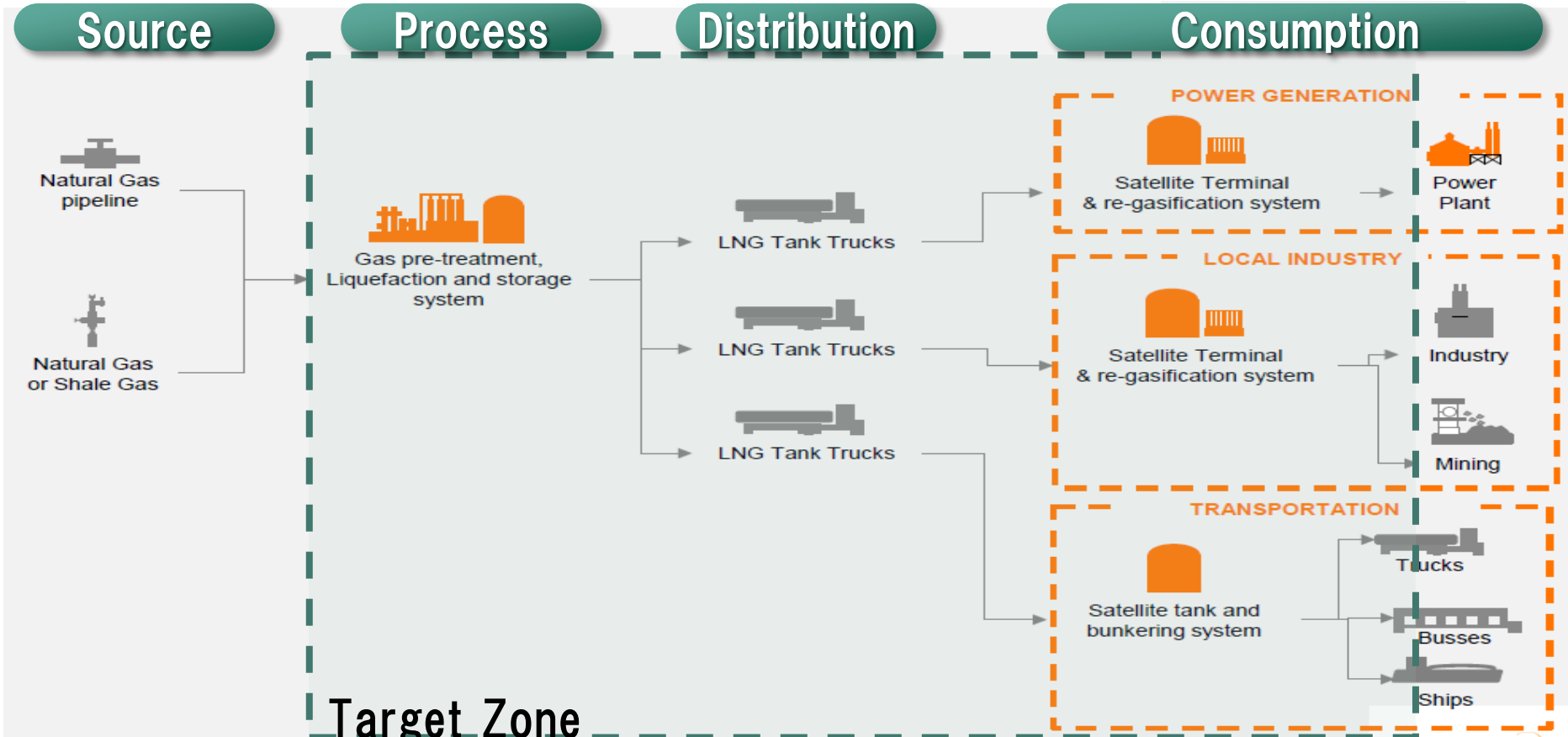


Image source: Wartsila

Hitachi High-Tech AW Cryo, Inc. LNG tank container features

1. Superior Performance

Vacuum/Insulation engineering performs better in high vibration and ocean shipping environments

2. Less maintenance

Tanks remain longer in operation between routine inspections

3. Safer

Less pressure rise in inner tank even if vacuum breach occurs in case of accident.



7. New LNG Applications in Japan



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Home > News Releases > 2015 > NYK Receives Delivery of Japan's First LNG-fueled Vessel

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- 2016
- 2015
- 2014
- 2013
- Before 2012

NYK Receives Delivery of Japan's First LNG-fueled Vessel

September 15, 2015

On August 31 at the Oppama factory of Keihin Dock Co. Ltd.,* NYK received delivery of Japan's first LNG-fueled tugboat. The vessel has been named "Sakigake" and is expected to confirm the viability of LNG (liquefied natural gas) as a marine fuel and to help cultivate a new business field in the area of LNG as an environment-friendly marine fuel.

Sakigake has been chartered to Wing Maritime Service Corporation** from NYK, and will be operated mainly at the ports of Yokohama and Kawasaki. This vessel is the second environment-friendly tugboat operated by Wing Maritime Service Corporation, following the delivery of *Tsubasa*** in March 2013.



"Sakigake"

Source: www.nyk.com



Among coastal and oceangoing ships, Sakigake is Japan's first LNG-fueled ship that is not an LNG carrier.

LNGタグ「魁」PVWEB版 Japan's First LNG-fueled Ship "Sakigake"



352 views

Source: YouTube

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NYK to Build Japan's First LNG-Fueled Tug

December 24, 2013

NYK will build a tugboat¹ featuring a dual fuel engine² that can be powered by either liquefied natural gas (LNG) or heavy oil. Other than LNG carriers, this tugboat will be the first building in Japan of an LNG-fueled vessel.

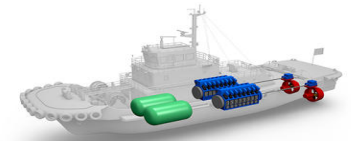
NYK has enhanced its initiatives to mitigate environmental loads through the practical realization of environment-responsive technologies such as solar-powered systems and air-lubrication systems.³ In 2011, NYK established a team in the company's Fuel Group to research next-generation fuel alternatives to heavy oil, and looked into building an LNG-fueled vessel with the cooperation of Nippon Kaiji Kyokai and others, based on the results of a survey conducted by the Japan Railway Construction, Transport and Technology Agency. LNG received attention as a possible alternative to heavy oil because LNG does not emit any SO_x and produces far less CO₂ and NO_x compared to heavy oil. In fact, using LNG as a fuel will cut this tugboat's emissions of CO₂ by about 30%, NO_x by about 80%, and SO_x by 100% compared to using heavy oil.⁴

This project will be subsidized by Japan's Ministry of Economy, Trade and Industry and Japan's Ministry of Land, Infrastructure, Transport and Tourism. Tokyo Gas Co. Ltd. (head office: Tokyo) will supply the LNG, and with the support of Tokyo Gas, NYK will make arrangements for a safe LNG supply system.

The NYK Group will aggressively continue to encourage initiatives to mitigate environmental loads by vessels.



Image of LNG-fueled tugboat



HITACHI

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Thank you! 有り難うございました。



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