

29th APEC Transportation Working Group Meeting
MARITIME EXPERTS GROUP

Report of Human Resource Development Project

**Sharing the Awareness
on the Critical Importance of
Effective LNG Officer Quality Control**

July, 2007

Chinese Taipei

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The Action of TPTWG28/MEG/025 (2006)

“The group recognized the critical importance of this issue to all APEC economies and their interest to various measures proposed by IAMU, and **endorsed this project**, in principle.”

LNG Trade Update

World LNG Calendar 2006 - 2010

Items	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010	Remarks	Note
Total Fleet(year end)							Tier-I Fleet
(a) Number	216	251	305	339	342		*Mar.06:
(b) Capacity	26,819,168	32,043,768	41,779,068	47,685,768	48,149,968		196 Ships
N/B Deliveries						[Total]	23,987,238 cbm
(a) Number	20	35	54	34	3		Tier-II Fleet
(b) Capacity	2,831,930	5,224,600	9,735,300	5,906,700	464,200		*Features:
Containment System							New Technologies
(a) Spherical	5	3	7	1	0		16
(b) TGZ	6	19	26	21	2		74
(c) GT	6	13	21	12	1		53
(d) CS1	3	0	0	0			3
Main Propulsion						[Total]	77
(a) Steam Turbine	17	30	20	9	1		33
(b) DFDE	3	1	12	15	2		36
(c) SSDF	0	4	22	10	0		
IMO	IMO MSC81(May) discussed LNG issue						LNG Specific Mandatory requirements is aimed to be completed by 2012
Important Matters		1) The first 200K cbm ship appears 2) SSDF appears 3) On board reliquefaction plant 4) China's first LNG ship will be delivered	1) The first 260K cbm ship appears 2) SSDF-Rapid increase, superceding Steam Turbine in N/B	1) Capacity doubles from March, 06		*DFDE: Dual Fuel Diesel Electric *SSDF: Slow Speed Diesel, Reliquefaction Plant on board	

[Source: LNG Solutions]

LNG Trade Update (Cont'd)

Lost Balances

- a) **Human resources** due to rapid fleet expansion:
 - i) LNG qualified Mariners
 - ii) LNG qualified Instructors
 - iii) LNG terminal operators
- b) **Human resources** due to “bad timing”, i.e. it coincided when world quality Mariners and Instructors massively retires

LNG Trade Update (Cont'd)

Lost Balances

- c) **Cargo – Tonnage imbalance**

“Giants facing lonely days

Qatar's big LNG carriers face limited trading opportunities until their own projects kick in.

Qatar is considering putting its new giant 265,000-cbm Q-max LNG carriers into lay-up upon delivery as the ships emerge in advance of project needs.”

- Trade Winds, May 18, 2007

LNG Trade Update (Cont'd)

d) **Project Plans – Realization imbalance**

U.S. new receiving terminals have been struggling.

* **Sparrow Point, Baltimore:**

Hearing on safety and security of LNG

“On May 7, 2007, the Subcommittee on Coast Guard and Maritime Transportation of the House Committee on Transportation and Infrastructure will conduct a hearing”

* **Cabrillo Port Project, California** by BHP was denied. (June 5, 2007)

* **The new GAO study:**

“It urged the Energy Department to perform new research on the risks from a major fire or gas release in terror attacks or natural disasters on such tanker ships.” (February 22, 2007)

LNG Trade Update (Cont'd)

.....As a Result, **LNG trade comes like Tramp**

Trade Winds (May 18, 2007) reported:

“Japanese LNG buyers have already started making moves to gear up their existing LNG-import facilities to accept the new monsters...”

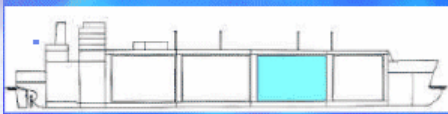
“LNG originally earmarked for the UK and US, which are building terminals to accept these ships, may instead be offered to Asia as gas demand patterns shift.”



Proliferation of risks

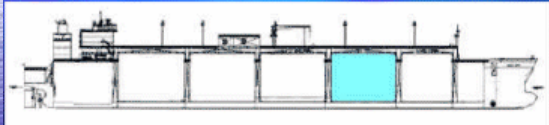
LNG Trade Update (Cont'd)

Q-Flex and Q-Max



Benchmark Membrane CLNG Ship

Representative 138 km³, 4 cargo tanks
270m length x 43m beam x 11.5 draft



Qatar Membrane LLNG Ship (Q-Flex)

About 205 km³, 5 cargo tanks
315m length x 50m beam x 12m draft

Qatar Membrane LLNG Ship (Q-Max)

About 250 km³, 5 cargo tanks
345 m length x 55 m beam x 12 m draft

IMO – STCW Review

The holistic review process is much delayed...

Now final draft is expected in 2012

Industry Best Practice

SIGTTO (Society of International Gas Tanker and Terminal Operators) has set its own standards.

...Logical discussion may be necessary, in view that SIGTTO is an organization of private user companies. *Can this be a logical substitute?*

National Policies of the Member Economies

LNG (and Energy ships) under National Flag/Own seafarers

For example:

- *U.S.: New terminal – U.S. Mariners
- *Korea: Korean flag, Korean crew
- *Japan: Japanese flag, Japanese crew
(oriented)

APEC Platform

– Has reasons to take initiative

1. **Common interests** among the members
...almost all the APEC member economies are either exporters, importers or LNG crew supply economies.
2. Energy Safety & Security is **the responsibility of administrations**
...No other ocean borne cargo can have ***direct impact to the public interests*** of the importing and exporting economies
3. **APEC has a concentration of knowledge, know-how, expertise, and experience on LNG**

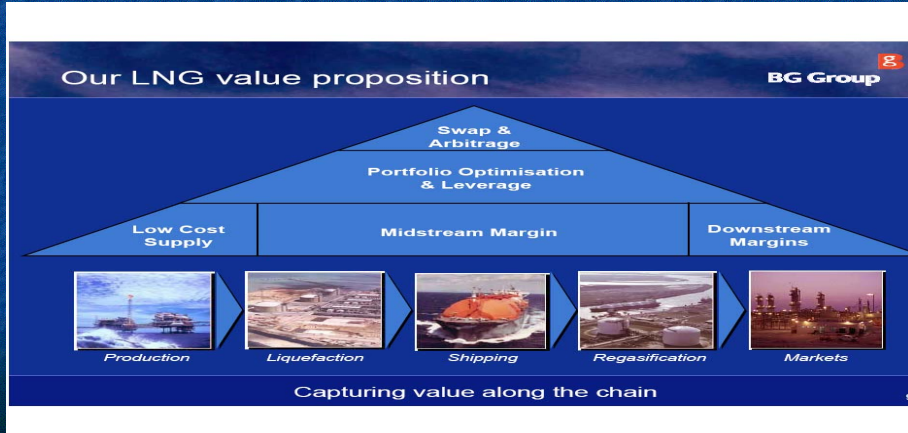
LNG – The Common Interests of APEC Member Economies

1. **Exporters:** (About 50% of the world exports)
Australia, Brunei, Indonesia, Malaysia, Russia, U.S.A.
2. **Importers:** (About 70% of the world imports)
P.R.C., Chinese Taipei, Japan, Korea, Mexico, Singapore, U.S.A., (mores economies are expected to join)
3. **Seafarer supply countries:** (Majority sharers of the world)
P.R.C., Indonesia, Korea, Malaysia, Papua New Guinea, Philippines, Russia, Thailand, Vietnam, U.S.
4. **Concentration of Technologies** are in APEC Area

LNG Sector Supply Chain – Overview

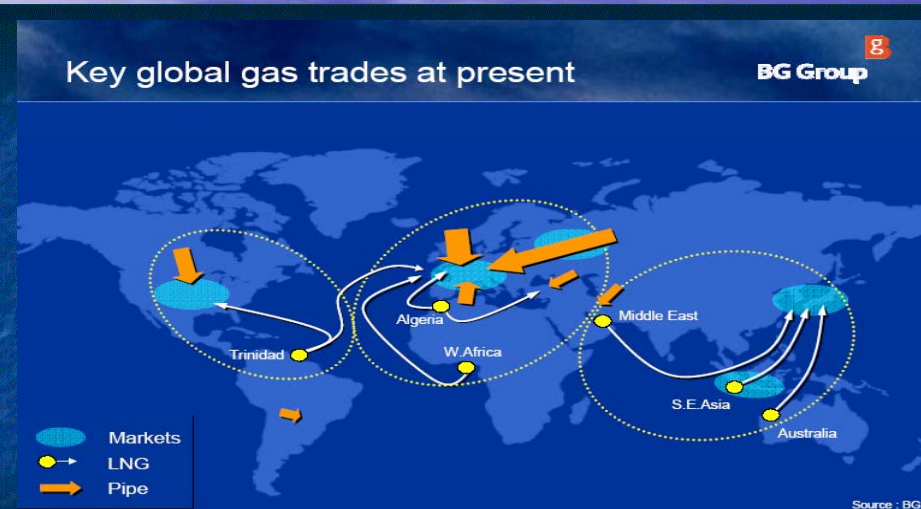
LNG Supply Chain

*** *Shipping* = The Unique Segment ***
 i.e. If FOC, Regulations on Seafarers are loose even for LNG ships



LNG Sector Supply Chain – Up to Now

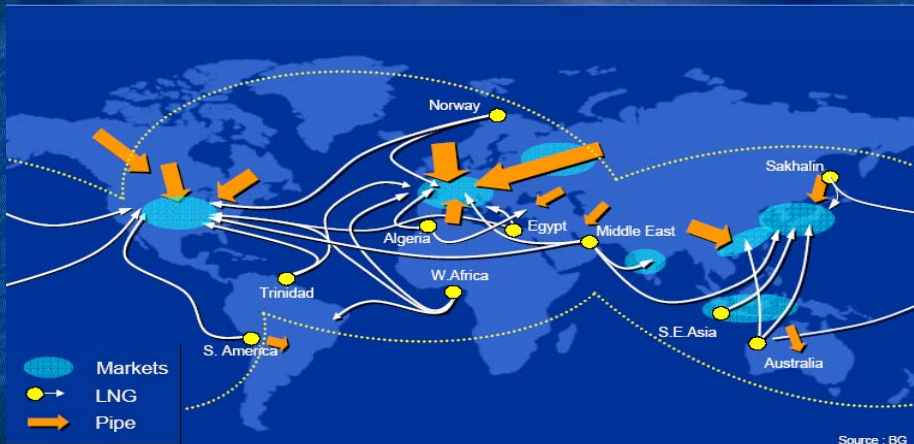
Key global gas trades at present



Present trade - limited regional overlap

LNG Sector Supply Chain – Tomorrow

Expected global gas trades 2010+



Future trade – the globalisation of gas

Critical Elements

Key Resources



Critical Elements



A View from LNG Supply-Chain

1. Ocean Transportation – **The critical Sub-system**

(As shown in page 15)

2. APEC Gas Forum (APGAS) Recommendation to EMM:

“Funding of Facilitation Measures and Activities:

Development of LNG vessel and crew training standards (in cooperation with SIGTTO and the International Association of Maritime Universities)

3. EMM8 (Darwin, Australia, 27-30 May, 2007)

“We encourage APEC economies to address the recommendations of the APEC Gas Forum.”

Conclusion

Suggestions

- 1. To establish TPTWG-MEG
LNG AD-HOC COMMITTEE for LNG
Safety and Security NOW**
- 2. In Collaboration with APEC EWG**

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Thank you very much