Session one: Asian Markets - Legacy Meets Emerging

“Overview of Global LNG Markets – Asia Pacific Context”

By:
Datuk (Dr) Abdul Rahim Hashim
President
International Gas Union (IGU),
Malaysian Gas Association (MGA)

20th September 2011
Shangri-La Hotel | Singapore
Outline

1. Intro – Brief on IGU
2. Energy Outlook until 2030
3. Global LNG Supply-Demand Outlook
4. Opportunities & Challenges
5. LNG – Going Forward
6. Closing Remarks
Worldwide and non-profit organisation established in 1931
Promotes technical and economic progress of the gas industry
Emphasising sound environmental performance worldwide
Increased focus on strategic, policy issues and gas advocacy
Cooperation with IEA, United Nations, World Bank, IEF and others
IGU members represent 95% global gas sales

- 74 Charter members
- 35 Associate members
- 11 Affiliated members

As of April 2011
1. Introduction – Brief on IGU

**IGU in the 2009 – 2012 Malaysian Triennium**

**IGU MANAGEMENT TEAM**
- President: Datuk (Dr) Abdul Rahim Hashim, Malaysia
- Vice President: Mr Jérôme Ferrier, France
- Immediate Past President: Mr Ernesto A. López Anandón, Argentina
- Secretary General: Mr Torstein Indrebø, Norway
- Director: Mr Hans Riddervold
- Senior Advisor / Web Master: Mr Erik Gonder

**EXECUTIVE COMMITTEE**
- Vice Chairman: Mr Georges Liens, France
- Chairman: Mr Ho Sook Wah, Malaysia

**COORDINATION COMMITTEE**
- Secretary: Ms Ungku Ainin Ungku Tahir, Malaysia
World demand for energy is increasing

- Population growth
- Economic expansion
- Urbanisation
- Individual’s prosperity

**Population Growth**
- Average growth/year: 0.9% (2005–2030)

**GDP Growth**
- Average growth/year: 2.8% (2005–2030)

**Energy Demand Growth**
- Average growth/year: 1.2% (2005–2030)

**Source(s): ExxonMobil 2010, OECD/IEA 2010**
Coal is abundant and cheap but environmentally unacceptable.

Most vehicles still depend on petroleum products.

Renewables are growing rapidly but remain expensive.

Natural gas will be the fastest-growing major fuel source through 2030.

Average growth rate per year
Fuel Consumption
2005-2030

<table>
<thead>
<tr>
<th>Fuel</th>
<th>2005-2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>0.7%</td>
</tr>
<tr>
<td>Gas</td>
<td>2.0%</td>
</tr>
<tr>
<td>Coal</td>
<td>0.7%</td>
</tr>
<tr>
<td>Biomass/waste</td>
<td>0.4%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>2.3%</td>
</tr>
<tr>
<td>Hydro/Geo</td>
<td>2.1%</td>
</tr>
<tr>
<td>Wind, Solar, Biofuels</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

% of natural gas from total energy mix 1990-2030

<table>
<thead>
<tr>
<th>Year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>22%</td>
</tr>
<tr>
<td>2005</td>
<td>23%</td>
</tr>
<tr>
<td>2010</td>
<td>23%</td>
</tr>
<tr>
<td>2030</td>
<td>25% - 28%</td>
</tr>
</tbody>
</table>
The share of natural gas in Asia Pacific’s energy mix accounted for 10% in 2010 as compared to the global natural gas’s share of 23%.

Accelerating economies of the Asia Pacific region have sparked a ferocious appetite for energy sources. China will be the largest gas use dominator with about 35% by 2030.
Unconventional gas now accounts for over half of total US gas production with tight gas is the leading one, and shale gas is the fastest.

Increased reliance on imported gas especially LNG that will make up for more than 1/3 of the Asia Pacific region’s gas supply in 2030.
The share of LNG continues to grow from around 31% in 2008 to 42% in 2035.
The volume of LNG traded will be more than double over the projection period.
Global LNG business to 2020: feast or famine?

Market conditions favorable for buyers:
- The shale gas revolution in the U.S
- The recession in 2009
- The large expansion of LNG production in the Middle East

Tightness in supply:
- Limited FIDs in 2006 to 2008;
- Fewer projects come online;
- Upward pressure on prices;
- The delays in Australian LNG projects;
- New capacity will be required ~2016 (FID to be taken ~2012)

Market swinging back in favor of buyers?
- Long term potential excess capacity

It is feast or famine in the LNG business. There is never a smooth curve!

The global LNG market responded quickly, with LNG supplies diverted to Japan. The power sector’s demand for gas will grow to make up for the nuclear fallout.
Such situation has contributed to concern over energy supply and boost oil prices.

One example: the Libyan civil war has removed 10 bcm of Italian piped gas import.

Source(s): U.S EIA 2011, Wood Mackenzie 2011, CEMS 2011
Australia is driving the next wave of LNG capacity growth.
Cost inflation remains a challenge.
Unconventional gas brought on-stream to the market will augment supplies of LNG.

The abundance of unconventional gas will strengthen the prominent role of gas.
The LNG market is already showing signs of tightening as a result of robust demand growth in 2010 and the demand shock from Japan in the aftermath of the Fukushima Daiichi tragedy.

While there is an expectation on the incremental LNG supply into the market to grow significantly in 2011 albeit less than in 2010, a temporary slow-down is anticipated in liquefaction capacity brought online in the medium-term (end-2011 to 2013).

Qatar, which is the largest LNG exporter, is expected to further increase its LNG exports in 2011 as the mega-trains realise full-year production. But in the longer term, Australia is projected to surpass Qatar as the largest LNG exporter.

The tally of countries turning to LNG imports to meet domestic needs will also continue to rise. Just as the Middle East and South America became LNG importing regions during the last decade, Southeast Asia and possibly Africa, will begin importing LNG this decade.
IGU publication: World LNG Report 2010

Produced by IGU annually
Comprehensive report on the state-of-the-art industry covering the entire LNG chain
Special section on the impact of unconventional gas on LNG industry

www.igu.org/igu-publications-2010/igu-publications-2010
portal.malaysiangas.com/modules/publication/publication/WorldLng/
IGU Message on Natural Gas

- It is abundant, affordable and acceptable
- Clean, efficient, versatile and environmental friendly fuel
- Continue to play a substantial role in global energy demand
- Basis for a sustainable economic growth

Natural gas
– major part of the long term energy solution
6. Closing Remarks

The 25th World Gas Conference (25th WGC)

“GAS : SUSTAINING FUTURE GLOBAL GROWTH”

Kuala Lumpur Convention Centre

4 to 8 June, 2012

www.wgc2012.com/, www.igu.org/

THANK YOU FOR YOUR KIND ATTENTION !