LNG Pricing in Japan

Will the 'Top Runner' Program be expanded to LNG?

Figure 1: Japan—2013 selected LNG landed prices vs 'Top Runner' potential cap

- What is a 'Top Runner'? Japan's METI operates a programme in certain industries where it promotes replication of 'best in class' energy efficiency from one manufacturer to all suppliers. Although not formally proposed yet, there is a discussion in Tokyo about extending the concept to LNG pricing.

- Implications for Australian LNG suppliers. The spectre of a price ceiling may challenge Japanese utilities' comfort to agree to current price reviews above such a ceiling. We look through each Australian project for exposure to Japanese supply—finding a wide variance.

- Implications for Japanese LNG sellers. With Ichthys pre-sold and price reviews still seven years away, we see little effect from Top Runner; however, there will be greater pressure for pricing Inpex's second LNG project, Abadi, in Japan. Japex's Pacific NorthWest LNG project is likely insulated.

- Implications for the US and Russian LNG sellers. In the US, US$6/mmbtu appears the hurdle to meet a possible US$13/mmbtu Top Runner cap, so there is still headroom in the current environment. In Russia, the Sakhalin II project is likely under price review—hence, Top Runner could be relevant.

Source: FACTS Global Energy, Credit Suisse estimates
What is a 'Top Runner'?

Top Runner has its origins in Japan's drive for energy efficiency: Without indigenous natural resources, Japan has long been focused on energy conservation. The Top Runner Program (introduced in 1999) is managed by the Ministry of Economy, Trade and Industry (METI) and currently focuses on automobiles and consumer electronics. METI derives its power to implement the programme (as a regulatory policy instrument) from the Act on the Rational Use of Energy.

Figure 2: Top Runner Program in Japan

Source: clasponline.org

The aim is to insist on a cap, and continuous improvement thereafter: Under the programme, products are defined in categories, and when a manufacturer produces an appliance with top quartile energy efficiency (hence Top Runner) all other appliances in that category are required to meet the same standard within an agreed timescale. If manufacturers do not meet the standard in the agreed timeframe, METI can make recommendations, which can be enforced to avoid further non-compliance.

Revitalised under the Abe administration: The current METI minister made reference to Top Runner in a policy speech delivered in March 2013, which talked about re-building competitiveness for Japanese industry and that "ensuring a stable supply of energy at a low cost is absolutely vital to Japan." The speech also referenced the core of the reform being the facilitation of the liberalisation of the electricity market. The speech also announces a Bill intended to expand the Top Runner Program to cover building materials. Finally, the speech highlighted the government's intention to diversify the supply sources for LNG, making the 'import of LNG from North America a reality'.
The loss of nuclear generation is weighing heavily on the trade balance, competitiveness, among others: Nuclear has gone from 30% to zero in the primary energy mix, while LNG moved from 30 to nearly 50% (really, 50%!) and oil expanded from 8% to 16% by 2012. In response, Japanese utilities substituted crude (and fuel oil) with coal in 2013. Despite the coal / oil substitution the trade deficit (which has reached a record at 17 months in a row) increased by 35% in November 2013 (YoY).

High energy input prices translating into pressure for politicians to act: The increase in LNG, crude and fuel oil is driving higher residential power prices (an ever-sensitive political issue) and higher industrial input costs. Hence, the current administration is considering ways to reduce LNG prices.

What has been proposed already: In METI's 'Annual Report on Energy', issued in August 2013, it has been proposed that:

- The government approach resource nations directly viz resource acquisition.
- Direct resource diplomacy with 'the United States, Russia, African countries, Australia, the UAE and other countries'.
- Increase government funding for resource acquisition.
- Directly link preferential debt guarantees to projects that are 'expected to considerably reduce LNG prices'.
- Cooperation with India and other LNG purchasers.
- Promote resource development in Japan (methane hydrates).

This reflects a more direct and targeted involvement by the political apparatus to increase resource security and try to significantly reduce LNG input prices into Japan.

Top Runner for LNG also under discussion: Whilst not formally proposed, active discussions are being held with the idea that the Top Runner Program be expanded to LNG pricing. Media and industry consultant reports suggest that METI is considering Top Runner for LNG prices with the following boundaries:

- Setting a price ceiling:
  - US$13/mmbtu (presumably delivered ex-ship), possibly US$1 or $2/mmbtu above this.
Prices thereafter to improve (lower).
To apply to requests for regulated tariff adjustments (i.e. could not be enforced for deregulated sales).
Could apply to the power utilities rather than the gas distribution companies.
Would apply to both new contract pricing, and existing contract price reviews.

**Figure 4:** Japan—2013 landed LNG prices vs possible Top Runner ceiling (range)

**Multiple existing contract price reviews likely under way:** We believe that the North West Shelf, Pluto, Adgas and Sakhalin II projects are in, or will shortly commence, price review discussions with Japanese buyers. In addition, Kogas is understood to have recently settled a price review with MLNG Tiga, with a 13.5% slope and a US$0.5/mmmbtu constant (suggesting US$14/mmmbtu—Free On Board (FOB) basis).

**Figure 5:** APAC’s uncontracted demand / potential supply—to 2020

**In reality, the current LNG market is very tight:** Figure 5 shows the CS view that uncontracted demand significantly exceeds both firm and potential uncontracted supply in 2014 (and 2015, 2016 and 2017). Against this backdrop, we believe it would be difficult to expect sellers to agree to radically lower price formulas for existing contracts under review.
Other buyers would support the implementation of lower price caps in Japan: Clearly, buyers in other Asian countries would welcome the implementation of a price cap in Japan to the degree that it successfully created lower precedents for those buyers to seek in their own price review negotiations. In reverse, a recent industry media article suggested that a price review between Malaysia LNG (Tiga) and Kogas in Korea resulted in a 13.5% slope, somewhat lower than seller expectations in the current round of Japanese price reviews, which would suggest a DES price of US$15/mmbtu at US$100 JCC, but interestingly US$13/mmbtu (DES) at US$85 JCC (also assumes a US$0.5/mmbtu constant in all cases)

If implemented, Top Runner for LNG, may cause short-term uncertainty: While it may seem that the implementation of a price ceiling may give negotiating power to the buyer, in reality we believe this may simply cause a period of inertia where buyers are unwilling to commit to price reviews that exceed the Top Runner ceiling (if implemented) and sellers are unwilling to price down to the extent suggested by that ceiling in what is a very strong current market. The reality is that LNG contracts in Asia are long term, carry 100% Take or Pay provisions, and typically use the existing price formula for cargoes delivered under the Take or Pay provisions to calculate the price for cargoes delivered during a price review discussion, with a retrospective application of the agreed formula to those cargoes and a payment from one side to the other once the price review process is agreed.

Price controls do not have a good track record... Looking around the region, the history of regulated and capped prices has been poor (to say the least). Whilst it may be politically desirable to be seen to try and take action to reduce the input cost of LNG in Japan, the market reality is a current market that supports the sellers' price aspirations rather than the buyers (directly and/or vicariously). CS believes that the consideration (and potential implementation) of a Top Runner Program for LNG purchases in Japan would not achieve its aim (i.e., the sellers would not agree to the lower prices) but could create a period of price negotiation inertia.
Implications for Australian LNG sellers

The degree of exposure for Australian projects to long-term off-take contracts in Japan varies greatly (please see Figure 6 below); and, within those projects that do supply to Japan, individual contract terms are important when we think about any potential implications of a Top Runner program for LNG. Pluto has significant exposure to Japanese off-take, including a utility buyer (Kansai Electric) and is known to be undertaking a price review, as is North West Shelf. However, the starting point for existing pricing is believed to be radically different between the two projects. The CSM (CBM) to LNG projects in Eastern Australia generally have a low exposure to Japanese supply (possibly reflective of the Japanese buyers caution on the operational challenges of using an unconventional gas source as feedstock for a liquefaction process). In this section, we expand on each of the Australian projects.

Figure 6: AU LNG projects—contract supply exposure to Japan

![Graph showing contract supply exposure to Japan]

Note: Non contract capacity assumed sold as spot, not reflected in Japanese off-take.
Source: Credit Suisse estimates

**Darwin LNG**: Operated by Conoco, the Darwin LNG project has a nameplate capacity of 3.7MTpa, with 3MTpa sold under long-term off-take agreements with two Japanese buyers: Tokyo Electric and Tokyo Gas. We understand a price review was completed within the last 12 months and, for that reason, the Darwin LNG project has little exposure to any potential near term Top Runner action. **Darwin LNG is owned by ConocoPhilips (Operator–57%), Tokyo Electric / Tokyo Gas (combined 9%), ENI (11%), Inpex (11%) and Santos (12%).**

**North West Shelf** (WPL is the one-sixth owner and operator) is currently in the early phases of a price review presumably for T1-3 supply for contracts that commenced in 1989 and were extended in 2009, typically for around ten years. This may be important to the tone of the negotiation: if NWS does NOT intend to seek a further extension to these contracts around the end of the decade it would be more focused on maximising realised price; if the venture intends to extend further, it would be conceivable to consider an element of ‘give’ to the buyer to maintain the relationship as the extension negotiations would be at a period where new supply points will be available. We assume that the current price review is concluded this year and that the new price formula is very similar to that in place (a ‘traditional’ slope). We would not be surprised if the sellers offer some minor flexibility improvements to ‘show willing’: for example, increasing annual and/or
cumulative downward flexibility (Downward Quantity Tolerance—DQT). Importantly the sellers likely don’t feel in a hurry to conclude the negotiations, given they already enjoy a ‘traditional’ price formula. We assume that for the 2019 price review the correlation to JCC falls to 12% (a reflection of the effect of US LNG supply into Asian LNG prices at the end of the decade). The North West Shelf is owned equally by: Woodside (operator), Chevron, Shell, BP, BHP and MIMI (a JV between Mitsubishi and Mitsui).

Figure 7: NWS—CS’ current, 2014-19 and post 2019 FOB forecast formulae

Pluto: The Pluto project is also undergoing a price review with its Japanese buyers (Kansai Electric/Tokyo Gas). The project was sold at a time generally considered a ‘buyers-market’ (2005) and the prevailing price formulae were lower than the current situation. Pluto is considered to be a circa 8% slope. Given the shortfall in contracted supply in North Asia and specifically Japan it would seem logical that Pluto will re-set to a traditional price correlation (somewhere between 14 and 14.5%)—but the dynamics’ re-timing may be different from the North West Shelf negotiation, in that the low current price realisation may leave more impetus for the sellers to reset than the buyers. Woodside guides that it is confident that the price review will be complete by April and that investors will be able to sight the reset via the quarterly earnings breakdown for Pluto. The Pluto project is owned by Woodside (Operator–90%) with small stakes being held by the anchor off-takers Kansai Electric and Tokyo Gas (5% each).
**GLNG**: The GLNG project is moving towards the first gas next year, with a target to have train one operational 'in 2015' and the second train ready for start-up (RFSU) by the end of next year. Of the 7.8MTpa capacity, 7.2MTpa has been sold to Kogas, Total and Petronas who also have equity positions in the project. Santos guides that, for GLNG, price reviews are every five years (presumably five years from the first gas is the first review—however, this is not explicitly stated by Santos), that the price formula is linked to oil and that the price can only move in a +/- 5% band in every price review and that the 'influencing factor' for the price review will be reference to other Australian LNG supplies (reference speech by P Cleary, VP Strategy for Santos at the 2012 Investor Seminar). Hence, unless there is an early price review in the contract, the current Top Runner discussion in Japan is likely not particularly relevant for the GLNG project. **GLNG’s ownership: Santos (Operator–30%), Petronas (27.5%), Total (27.5%) and Kogas (15%).**

**Figure 8: Pluto—CS current, 2014-19 and post 2019 FOB forecast formula**

**Figure 9: GLNG—CS current, 2020+ & NWS current FOB formula forecasts**
PNGLNG: The PNGLNG project, that took sanction in late 2009, is now more than 90% complete and set for first gas in 2014. The project has 6.9MTpa capacity and has sold 6.6MTpa to Asian buyers including Tokyo Electric, CPC (Taiwan), and Sinopec. Oil Search guides that the initial price formulae are 'traditional', and that (as with GLNG) some of the price reviews (presumably due five years after first gas i.e., 2019) are controlled within a narrow range. Hence, we do not see the Top Runner concept having an adverse effect for the PNGLNG project's first two trains. If the venture accelerates the marketing of a third train and targets Japan then the idea of a cap may be challenging as the project is known to take a strong stance in seeking traditional price formulae. PNGLNG's ownership: Exxon (Operator–33.2%), Oil Search (29%), NPCPNG (16.8%), Santos (13.5%), Nippon Oil (4.7%) and MRDC (2.8%).

Figure 10: PNGLNG—CS' current and 2019+ FOB price formulae forecast

Source: Credit Suisse estimates

QCLNG: The BG-operated QCLNG project is due to commence first train commissioning imminently guiding the market it will sell LNG in 2014. The project has a capacity of 8.5MTpa and has signed long-term off-take agreements with CNOOC, Tokyo Gas (1.2MTpa for 20 years) & Chubu Electric (circa 0.1MTpa over 21 years). In addition, BG Group has portfolio supply agreements with Chile and Singapore that are expected to be supported with off-take from the QCLNG project. We assume that both of the supply contracts with the Japanese buyers, which were negotiated in 2010 and finalised in 2011, have a traditional slope within a certain crude price range—likely $40 to $110/bbl—but reduce the relationship to crude above and below those points (a so called 's-curve' formula). We assume that the Japanese supply likely has price reviews, but this is unlikely to be before the end of the decade; hence, the Top Runner concept is likely not a major challenge for QCLNG. QCLNG's ownership: BG around 74% overall CNOOC circa 24% and Tokyo Gas circa 2% (circa as different owners own differing percentages in each train and in the upstream tenements).

APLNG: The Origin-operated project is due to commence in mid-2015, with a two train capacity of 9MTpa. The project has a 1MTpa (11% of capacity) sales and purchase agreement with Kansai Electric with a further 7.6MTpa off-take agreement with Sinopec. When APLNG signed with Kansai, the indication was that the deal was better than the original deal with Sinopec so we assume a slope of 14.25 and no s-curve for the Kansai contract (versus an s-curve at US$80/bbl and a slope of 12.5 for the Sinopec deal). We assume price reviews do not impact until FY21, 5+ years after start-up. Given the small percentage of sales and the start-up timing of the project, we do not expect the Top Runner concept to be a material concern to the project proponents in APLNG. APLNG's ownership: Origin Energy (Operator–37.5%), Conoco (37.5%) and Sinopec (25%).
**As yet unsanctioned Australian projects:** Clearly those projects most advanced in terms of being in Front End Engineering and Design (FEED) and actively marketing in Japan may be facing a challenge in the current environment, with Top Runner as a rationale for the buyers despite the reality that projects sanctioned in 2014-15 would only start supply in 2019-20 and beyond. Unsanctioned projects in Australasia that would likely target Japan would be Browse which advertises a 2015 FID and should therefore be marketing in Japan now; PNG LNG Train 3 which is not marketing at this point given a lack of clarity on source of gas but which should clarify this by the end of 2014 and move into marketing at that point. We would expect PNG LNG T3 to target Japan, but would not expect developers to be willing to consider price formulas based on the Top Runner cap.

**Figure 11: Summary of Australian projects’ exposure to Top Runner concept**

<table>
<thead>
<tr>
<th>Project</th>
<th>Japan exposure</th>
<th>Near term price review</th>
<th>Comment</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>North West Shelf</td>
<td>(very) High</td>
<td>Yes</td>
<td>Starting from a high base - will achieve traditional prices in 2014 review</td>
<td>WPL, RDS, BP, CVX, BHP, MIMI</td>
</tr>
<tr>
<td>Pluto</td>
<td>Complete</td>
<td>Yes</td>
<td>Starting from a low base, Top Runner a likely issue for Kansai Electric</td>
<td>WPL, Tokyo Gas, Kansai Electric</td>
</tr>
<tr>
<td>GLNG</td>
<td>None</td>
<td>No</td>
<td>Top Runner unlikely as an issue</td>
<td>Santos, Petronas, Total, Kogas</td>
</tr>
<tr>
<td>PNG LNG</td>
<td>Some (TEPCO)</td>
<td>No</td>
<td>Top Runner unlikely as an issue</td>
<td>XOM, National Oil Co, Santos, Nippon Oil</td>
</tr>
<tr>
<td>QCLNG</td>
<td>Some</td>
<td>No</td>
<td>Top Runner unlikely as an issue</td>
<td>BG, CNOOC, Tokyo Gas</td>
</tr>
<tr>
<td>APLNG</td>
<td>Some</td>
<td>No</td>
<td>Top Runner unlikely as an issue</td>
<td>Origin, Conoco, Sinopec</td>
</tr>
<tr>
<td>Browse</td>
<td>Target market</td>
<td>NA</td>
<td>Would likely target Japan, but 1st gas unlikely before 2020 hence US LNG price argument likely more relevant than Top Runner</td>
<td>WPL, RDS, PetroChina, MIMI</td>
</tr>
<tr>
<td>PNG LNG T3</td>
<td>Target market</td>
<td>NA</td>
<td>Not marketing yet, would target Japan but US LNG price pressure more relevant than Top Runner</td>
<td>XOM, National Oil Co, Santos, Nippon Oil</td>
</tr>
</tbody>
</table>

Source: Credit Suisse estimates

**US LNG and Top Runner**

**US$6/mmbtu HH would equate to US$13/mmbtu in Japan...** Japanese gas proponents (METI, JBIC etc) repeatedly talk about ‘lower’ Hub-based LNG prices from the US. If we use the Cheniere pricing model applied for the first four trains of its Sabine Pass facility (thus far the only US LNG facility to receive all approvals, take sanction and start construction), and assume that shipping is US$3/mmbtu (currently an interesting point as tariffs for the Panama Canal are meant to be set in the first half of 2014 and there is a major dispute over funding of the expansion), liquefaction is US$3/mmbtu and an additional 15% of the hub price is charged for sourcing the gas / gas loss in liquefaction, then US$6.1/mmbtu HH would equate to US$13/mmbtu in Japan and US$7.8/mmbtu would equate to US$15/mmbtu in Japan. The US natural gas futures curve suggests Top Runner would not be an issue for US sourced LNG given the other assumptions made above. It’s also worth remembering that any project not already under construction is very unlikely to deliver LNG prior to 2019.
Coming back to Cheniere, despite the recent weather-driven spike in natural gas prices, given the futures curve for Henry Hub gas (and our own firm's forecasts), we don't expect this to have a meaningful impact on its efforts to find contracting for the Corpus Christi project as well as Train 6 at Sabine Pass—both likely looking for $3.50/mmbtu which still appears fairly reasonable and is more a question of timing. That said, for Cheniere and for others looking to market volumes not under contract (sell spot LNG), this clearly has the following possible ramifications: (1) a possible cap on rates available to Japan, and (2) the Japanese ceiling influencing spot rates available in the region as well. So at $5/mmbtu Henry Hub gas, a $13/mmbtu cap limits profits to $5/mmbtu while a $15/mmbtu cap limits profits to $7/mmbtu (there would be no 15% surplus fee for an entity such as Cheniere given that it markets and sources its own natural gas and sells its own LNG, and has no liquefaction fee).

Russia and Top Runner:

Sakhaliin II started supply into Japan in 2009: Japan is a significant off-taker from Russia's only operating LNG project—Sakhalin II (Gazprom is the Operator, Mitsubishi, Mitsui & Shell are the other partners), with SPA's supplying Tokyo Electric, Tokyo Gas, Chubu Electric, Kyushu Electric, Tohoku Electric, Osaka Gas, Saibu Gas, Toho Gas and Hiroshima Gas. First deliveries started in early 2009 hence if the price review clause is every five years those contracts should be under review in 2014. The Japan monthly landed data for 2013 suggest that overall Russian LNG has averaged circa US$14/mmbtu—already at the low end of the national average (and likely includes several spot cargoes from Sakhalin II as well as contract deliveries). Hence, the Top Runner concept may be a relevant factor for the Sakhalin II price review in Japan. Industry sources suggest that Malaysia Tiga recently settled a price review in Korea at a 13.5% slope and a US$0.5 constant. At $100/bbl that would suggest US$14/mmbtu FOB and US$15/mmbtu DES.
Figure 13: Russia versus Japan's national average LNG supply price (DES basis) 2013

Russia may be inadvertently meeting the Top Runner concept: The Yamal project announced FID (Final Investment Decision) in December last year. One anchor off-taker / equity participant is CNPC (PetroChina's unlisted parent) who industry sources believe agreed to a 12% JCC slope. If that were correct and using an assumed $0.5/mmbtu constant that would suggest a headline US$12.6/mmbtu on a FOB basis.
Implications for Japanese LNG sellers

**Ichthys LNG:** The project, which has a capacity of 8.4MTpa, is currently in the early 30% complete, with first gas expected in late (calendar) 2016. SPA’s have been signed primarily with Japanese power utilities and gas distributors (Tokyo Gas, Toho Gas, Osaka Gas, Chubu Electric, Kyushu Electric) and CPC in Taiwan as well as off-take agreements by Inpex and Total. We assume that the project achieved traditional price linkages, on a straight line rather than S-curve basis. We assume that the price formulae apply from first gas for a period of five years—hence the first price review would be in December 2021 and as such the Top Runner concept should not be an issue for the Ichthys project. With the majority of participants being Japanese, it may be tempting to consider if the seller and buyers re-open the price before contractually being required to do so, but we don’t believe this would be possible given Total’s interest in the project. Whilst we believe that Ichthys will expand at some time in the future, this is not a near-term reality. **Ichthys’ ownership:** Inpex (Operator–63.4%), Total (30%), CPC (2.6%), Tokyo Gas (1.6%), Osaka Gas (1.2%) Chubu Electric (0.7%) and Toho Gas (0.4%).

**Darwin LNG:** Conoco is the operator of the Darwin LNG project, which started in 2006, which is a single train (3.7MTpa) with 17-year SPAs with Tokyo Gas and Tokyo Electric. We understand a price review was completed in 2012 hence the next review is likely not until 2016; should the Top Runner concept still be considered or implemented at that point it may be an issue for that price review. The Darwin LNG project was built before the capex escalation in Australia and has strong project economics—however the lack of gas restricted the SPA tenure to 17 years. It would seem likely that the project owners would be interested in both a project/SPA extension and additional capacity but this would require third-party gas hence the project is not actively marketing LNG into Japan at this stage. **Darwin LNG’s ownership:** Conoco (Operator–57%), Inpex (10%), ENI (12%), Santos (11%), Tokyo Electric (7%), Tokyo Gas (3%).
Abadi: The Abadi opportunity is currently a 65 / 35% venture with Inpex as the Operator. Wood MacKenzie reports 2P reserves of 18Tcf and condensates of 300 million barrels. The first phase Basis of Development is a Floating LNG (FLNG) vessel with 2.5MTpa capacity, and the project is currently in the Front End Engineering and Design (FEED) phase. It is therefore likely to be actively marketing the project in Japan. It would seem reasonable to assume that the operator would, as the flag carrier Japanese oil and gas player, be under some domestic pressure to comply with the principle of lower prices (a la the Top Runner concept). However, as with the Ichthys project where Total was the strategic partner with veto rights on LNG pricing, we would fully expect Shell to strongly resist compliance to a price control programme such as Top Runner, especially as the LNG would not be ready for delivery until the end of the decade. 

Abadi's ownership: Inpex (Operator–65%), Shell (35%) (Please note a 10% sell-down to a local partner is anticipated prior to FID.)

Pacific NorthWest LNG: Petronas, by buying Progress Energy in Canada, is the Operator of the Pacific NorthWest LNG project in British Columbia. Japex farmed in to the project in March 2012, taking a 10% stake. The project is currently configured as a two-train 12MTpa facility. The project website guides that the pipeline will cost circa $5bn and the liquefaction $9-11bn. We assume the pipeline is $4bn but the liquefaction $14.4bn ($1,200 per MTpa capacity). We also assume the upstream cost to first gas is $7bn ($3.5/mcf) hence the total project cost is $25.4bn ($2,100 per MTpa). However, the pipeline is planned to be built and operated by TransCanada and hence the capex will be lower but the opex higher. The liquefaction project is in FEED (since Spring 2013) and is in the process of seeking environmental and other regulatory approvals. Thus far, Petroleum Brunei has committed to off-taking 3% of the output (i.e., equity LNG), and Japex advises that it intends to take its 10% equity stake back to Japan (linking to its plan to build a regas terminal in Soma, Fukushima prefecture). We do not assume the Top Runner concept will be a major challenge to the project or to Japex's equity off-take, which they will regas and use their pipeline network to carry to end-use customers in Japan. The inherent threat would be if Top Runner were broadly implemented and, as a result, prices fell significantly in Japan that would reduce the end-user price that Japex could charge for the gas. As previously stated, we do not believe this will be the outcome in Japan. 

PNLNG's ownership: Petronas (Operator–87%), Japex (10%), Petroleum Brunei (3%).
Companies Mentioned (Price as of 28-Jan-2014)

BG Group plc (BG.L, 1082.0p)
BHP Billiton (BHP.AX, A$36.35)
BP (BP.L, 475.8p)
CNOOC Ltd (0883.HK, HK$12.22)
Cheniere Energy, Inc. (LNG.A, $42.93)
Chevron Corp. (CVX.N, $116.43)
China Petroleum & Chemical Corporation - H (0386.HK, HK$6.22)
Chubu Electric Power (9502.T, ¥1,218)
ConocoPhillips (COP.N, $65.86)
Eni (E.N, €46.5)
ExxonMobil Corporation (XOM.N, $94.92)
Gazprom (GAZP.MM, Rbl147.79)
Hiroshima Gas (9535.T, ¥292)
INPEX Corporation (1605.T, ¥1,246)
Japan Petroleum Exploration (1662.T, ¥4,010)
Kansai Electric Power (9503.T, ¥1,086)
Korea Gas Corp (036460.KS, W67,200)
Kyushu Electric Power (9508.T, ¥1,185)
Mitsubishi Corp (8058.T, ¥1,926)
Mitsui & Co (8031.T, ¥1,410)
Nippon Oil (5001.T^C10, ¥471)
Nippon Oil (5001.T^C10, ¥471)
Oil Search (OSH.AX, A$8.23)
Origin Energy (ORG.AX, A$13.8)
Osaka Gas (5932.T, ¥432)
PTT Exploration & Production (PTTE.BK, Bt161.0)
PetroChina (0857.HK, HK$7.74)
Petrobras Chemicals Group BHD (PCGB.KL, RM6.6)
Royal Dutch Shell plc (RDS.A, £213.45p)
Salib Gas (9536.T, ¥238)
Santoz Ltd (STO.AX, A$13.79)
Toho Gas (9533.T, ¥497)
Tohoku Electric Power (9506.T, ¥1,041)
Tokyo Electric Power (9501.T, ¥470)
Tokyo Gas (9531.T, ¥515)
Total (TOTF.PA, €42.38)
TransCanada Corp. (TRP.TO, C$48.55)
Woodside Petroleum (WPL.AX, A$38.2)

Disclosure Appendix

Important Global Disclosures

David Hewitt, Horace Tse, Mark Samter, Thomas Adolf, Ilikin Karimli, Abhiram Rajan and Sandra McCullagh each certify, with respect to the companies or securities that the individual analyzes, that (1) the views expressed in this report accurately reflect his or her personal views about all of the subject companies and securities and (2) no part of his or her compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

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*Relevant benchmark by region: As of 10th December 2012, Japanese ratings are based on a stock’s total return relative to the relevant country or regional benchmark. As of 2nd October 2012, U.S. and Canadian as well as European ratings are based on a stock’s total return relative to the relevant country or regional benchmark. As of 2nd October 2012 U.S. and Canadian ratings were based on (1) a stock’s absolute total return potential to its current share price and (2) the relative attractiveness of a stock’s total return potential within an analyst’s coverage universe. For Australian and New Zealand stocks, 12-month rolling yield is incorporated in the absolute total return calculation and a 15% and a 7.5% threshold replace the 10-15% and 10-15% levels in the Neutral stock rating definition, respectively. Prior to 10th December 2012, Japanese ratings were based on a stock’s total return relative to the average total return of the relevant country or regional benchmark.

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Analysts’ sector weightings are distinct from analysts’ stock ratings and are based on the analyst’s expectations for the fundamentals and/or valuation of the sector* relative to the group’s historic fundamentals and/or valuation:
Overweight: The analyst’s expectation for the sector’s fundamentals and/or valuation is favorable over the next 12 months.
Market Weight: The analyst’s expectation for the sector’s fundamentals and/or valuation is neutral over the next 12 months.
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*An analyst’s coverage sector consists of all companies covered by the analyst within the relevant sector. An analyst may cover multiple sectors.

Credit Suisse’s distribution of stock ratings (and banking clients) is:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Versus universe (%)</th>
<th>Of which banking clients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outperform/Buy</td>
<td>43%</td>
<td>(54% banking clients)</td>
</tr>
<tr>
<td>Neutral/Hold</td>
<td>41%</td>
<td>(48% banking clients)</td>
</tr>
<tr>
<td>Underperform/Sell</td>
<td>14%</td>
<td>(43% banking clients)</td>
</tr>
<tr>
<td>Restricted</td>
<td>2%</td>
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</tbody>
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*For purposes of the NYSE and NASD ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor’s decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.

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See the Companies Mentioned section for full company names

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