SINGAPORE—EMERGENCE OF A NEW LNG MARKET AND THE ROLE OF THE AGGREGATOR

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ABSTRACT

In 2008, Singapore’s Energy Marketing Authority appointed BG Singapore Gas Marketing as exclusive supplier and aggregator for the first three million tonnes per annum of LNG demand. Four years into a 15 year franchise, still one year away from commercial operations at the Singapore LNG Terminal, 90% of the franchise volumes are committed. How did the aggregator facilitate the extraordinary development of this new hub in the global LNG market? This paper will review the ways in which the aggregator has contributed to this accomplishment. The consolidation of downstream demand achieved credibility and maximised buyer power. This promoted the rapid realisation of a critical mass of long term demand. By virtue of the aggregator’s supply portfolio and marketing expertise, market participants can rely on security and diversification of their gas supply, as well as certainty of market pricing. In addition, having a single customer at the new LNG terminal enables efficient use of terminalling services and minimises unit costs, while simultaneously simplifying start up operations. The paper will also consider the aggregator’s ongoing role in market development: the opportunity to pursue value and security enhancing transactions that connect upstream and downstream markets is only just beginning to show its true potential. This paper will demonstrate how the aggregator role could potentially be applied successfully to other emerging LNG markets. Under certain circumstances an aggregator can bring strategic benefits to supplier, terminal, regulatory authority and LNG buyers alike, making it a credible procurement model for emerging LNG markets.

1. INTRODUCTION

Singapore’s gas market has entered a dramatic phase of transformation. As the Singapore LNG Terminal on Jurong Island enters commercial operations in mid-2013, LNG will join pipeline gas and petroleum products in the Singapore market for the first time and the global LNG market will welcome an ambitious new member.

In 2008, the Singapore Government’s Energy Market Authority (EMA) appointed BG Group as Aggregator to supply LNG and market regasified LNG for the first three million tonnes per annum (mtpa) of long-term LNG demand.

It was contemplated that securing 3 mtpa of demand could take up to 15 years, until 2023. However in just 4 years the Aggregator has committed sales for almost 90% of the franchise volumes. How did the Aggregator, working in close cooperation with the EMA, facilitate the extraordinary development of this new LNG market?

This paper reviews a number of ways in which the Aggregator has contributed to this accomplishment. Firstly, the consolidation of downstream demand achieved credibility for a new market whilst maximising buyer power, and this in turn has promoted the rapid realisation of a critical mass of long-term demand. In addition, and by virtue of the Aggregator’s supply portfolio and marketing expertise, market participants can also rely on security and diversification of their gas supply at competitive market pricing. Importantly, having a single customer at the new LNG terminal simplifies start up operations, enables efficient use of terminalling services and minimises unit costs.

The paper also considers the Aggregator’s ongoing role in market development: the opportunity to pursue value and security enhancing transactions that connect upstream and downstream markets is only just beginning to show the true potential of the Aggregator model.
2. SINGAPORE’S CHALLENGES

i. Gas Supply & Demand

Singapore currently imports the equivalent of approximately 7 mtpa of pipeline natural gas. As an island with no significant indigenous resources, security of supply dominates the energy landscape in Singapore. In the decade between 2001 and 2011 imported natural gas increased its share of Singapore’s electricity generation fuel mix from 26 to 78 percent. The balance of Singapore’s primary fuel requirements were also imported. Natural gas also fuels a number of key petrochemical and industrial processes, making it critical to Singapore’s economy.

**Singapore Fuel Mix for Electricity Generation**

![Pie charts showing fuel mix for electricity generation in Singapore from 2001 to 2011](image)

Natural gas is critical to Singapore’s power sector and economy

The primary source of Singapore’s gas supply is from Indonesia and the remainder is imported from Malaysia on a long-term basis. Continuing rapid economic development in these two nations – both of whom have commenced importation of LNG while continuing to export gas to Singapore – will likely impose limitations on the future availability of pipeline gas in Singapore. There are other supply uncertainties to consider for West Natuna and Sumatra, Singapore’s two key supply sources in Indonesia. It is expected that gas supply from West Natuna will start depleting from 2016, and it is possible that existing supply from Sumatra gas fields could in future be diverted to meet growing domestic requirements.

**2011 Gas Demand**

- Power: 75.7%
- Industry: 20.3%
- Other: 4.0%

**2011 Gas Supply**

- Indonesia: 84.1%
- Malaysia: 15.9%

Singapore primarily sources gas supply from Indonesia for use in the power sector
(Source: Wood Mackenzie, November 2012)
At a fundamental level then, Singapore needed to face up to the challenge of increasing gas demand at home, and limitations on both new and existing supply from its neighbours.

**ii. Supply Reliability**
In Singapore there are other aspects to supply security beyond the macro level supply-demand balance. On 29th June 2004, Singapore’s electricity supply was interrupted. From Jurong in the West to Changi in the East, 30% of Singapore’s power system was automatically disconnected for approximately two hours. Five Combined Cycle Gas Turbine (CCGT) units had shut down following a disruption in pipeline natural gas imports caused by a tripped valve, and demand was curtailed in order to bring demand down to a level which would not overload the remaining generation capacity. Singapore has since enhanced the reliability of its CCGTs by strengthening the procedures for generation companies to hot-switch from gas to diesel. Nevertheless, short term supply reliability of pipeline natural gas supply remains a supply challenge that Singapore seeks to overcome.

**iii. Demand Uncertainty – Aggregating to Critical Mass**
When considering an LNG terminal, Singapore needed to understand its projected demand for LNG. Typically LNG terminals benefit from economies of scale. Correspondingly, an adequate level of initial throughput is required to underwrite the large upfront investment, and to avoid placing too significant a proportion of those upfront costs on the initial users of throughput services.

The following chart shows the base case forecast of the initial ramp up in LNG demand in Singapore as estimated in 2005, 2009 and 2012. It highlights the potential difficulty in rapidly achieving sufficient LNG demand to kick start an economic large scale LNG terminal investment, particularly based on the initial 2005 forecast where demand was projected to build quite slowly, with demand not quite reaching 2 mtpa by 2015.

![LNG Demand Ramp Up - Forecasts](image)

*Forecasts of Singapore’s LNG demand ramp up have increased significantly over time*
*Source: TGE Analysis (2005), Schlumberger Business Consulting (2009), BG Estimates (2012)*

The composition of Singapore’s projected LNG demand is just as important as the aggregate level of demand. Following a successful liberalisation of Singapore’s gas and power industries over decades, the market - while increasingly competitive - was fragmented from the perspective of LNG procurement. The
2009 LNG demand forecast is broken down into its constituent potential buyers in the following chart. It highlights that the projected pathway to 3 mtpa of incremental demand was built on over a dozen potential buyers ramping up small volumes over a period of four years with a median LNG requirement of just 0.1 mtpa each. The offtake of the largest regasified LNG buyer in 2016 was projected to be over 25 times greater than that of the smallest, reflecting the diverse nature of a projected demand which spanned power generation, petrochemicals, as well as refinery and other industrial processes.

Singonge’s LNG demand was forecast to be highly fragmented among customers

With so many potential terminal users, a challenge for Singapore was to create a framework which enables a range of gas buyers to access both terminalling services and the global LNG market, while also meeting each buyer’s bespoke requirements for small, flexible volumes. This is particularly difficult when it is considered that oftentimes end users in Singapore require regasified LNG in increments equivalent to a mere fraction of the volume in an entire LNG cargo, to be consumed over extended time periods.

A comparison of the various forecasts for initial LNG demand reveals the considerable uncertainty faced by Singapore over the rate at which LNG demand would ramp up. Nonetheless, such was the support for the project, it will be just five years from the announcement of the Singapore LNG project to completion of the LNG terminal in mid-2013: an achievement almost unheard of for conventional land based terminals.

The need for multiple potential end buyers to contract individually for volumes of regasified LNG, combined with significant uncertainty over when the volumes might ramp up, meant that Singapore needed a procurement model that would enable LNG pricing to be modified in order to remain competitive over a long period of time.

iv. Trading Hub Ambitions
Singapore is well located on many existing LNG trade routes. With an eye on the longer term, Singapore also had the foresight to consider what role it might play in the growing market for LNG as a candidate for a physical LNG/gas trading hub in Asia. The trade off between providing sufficient infrastructure to ensure a
reliable and competitive gas supply to Singaporean gas buyers, and additional third party access to infrastructure to enable trading activities is a difficult balance to strike.

In order to help promote Singapore’s ambitions to become a vibrant LNG trading hub, a key feature for any potential LNG procurement framework in Singapore was that it must allow for parties to engage in market development activities, and to actively seek out, innovate and engage in trading opportunities as Singapore’s gas market opens up to the global LNG market for the first time.

The combination of the requirement for secure and competitive supply, uncertain demand from a fragmented customer base requiring flexibility, and establishing a framework to capture future opportunities made this a particularly challenging exercise.

3. THE AGGREGATOR

Demonstrating ‘the Lion City’s’ characteristic foresight and creativity, the EMA led with an innovative solution to Singapore’s challenges: aggregation.

i. Commercial Framework

In 2008, Singapore’s Energy Market Authority (EMA) appointed BG Singapore Gas Marketing as exclusive supplier and Aggregator for the first 3 mtpa of long-term LNG demand.

The Aggregator was appointed after a process run by the EMA that ensured availability of LNG co-incident with the terminal start-up and flexibility of the timing of the take-up of LNG volumes, all at the most competitive price. The Aggregator handles the interface between multiple gas buyers, the LNG supplier, and the LNG terminal, as shown in the commercial structure diagram below. The Aggregator is currently the only throughput customer of the LNG terminal, although the commercial framework is already in place to allow for multiple users to access the terminal simultaneously through a Terminal and Inter Customer Agreement (TICA - not shown).

The duration of the Aggregator’s exclusivity period is defined by how long it takes to contract for regasified LNG supply equivalent to 3mtpa of LNG on a long-term basis, which is defined as being gas sales agreements with a supply period of ten years or more. At the time of writing, almost 90% of the 3 mtpa franchise volumes have already been committed, leaving just over 0.3 mtpa of LNG available for Singaporean gas buyers to contract for on a long-term basis.

ii. Market Development Obligations

The Aggregator franchise is built on more than simply long-term sales. There are in fact a number of core functions that the Aggregator must perform. While the first function is to market the franchise 3 mtpa, the Aggregator is also required to develop, market and implement a number of short-term and spot gas sales
agreements to the Singapore market. Until 3 mtpa of long-term sales are committed, the Aggregator is obligated to respond to any request for supply on a long-term or a short-term basis.

Commercial operations is a core function of the Aggregator’s business, and the Aggregator’s bespoke nomination systems will provide the platform for gas buyers to exercise their gas supply flexibility through nominations, 24 hours per day and 365 days per year. Using sophisticated inventory management techniques, the Aggregator also provides the link between cargo scheduling by the LNG supplier (BG LNG Trading) and the LNG terminal operator (Singapore LNG Corporation).

In addition to ongoing marketing and commercial operations pursuant to the 3 mtpa franchise, another function of the Aggregator is to play an ongoing role in the development of the gas market in Singapore. Working together with the Singapore LNG project stakeholders, the Aggregator will develop a wide range of value and security enhancing transactions throughout the duration of all gas sales agreements which it holds, and that means that for the next twenty years the Aggregator will continue to pursue market development opportunities in Singapore. Potential activities could include pipeline gas/regasified LNG swaps, LNG bunkering supply, and the diversion of LNG cargoes.

The Aggregator earns a margin based on a rate of return on costs and working capital, which is regulated and approved by the regulator, the EMA. However, the key source of ongoing additional value for the Aggregator and for Singapore stem from the flexibility which the EMA has built into the regulated framework, which allows for the development of new and innovative supply products and trading options.

The aggregated procurement model and its core functions have met, and will continue to meet, a number of Singapore’s supply, demand and market development challenges discussed in the first section of this paper, and this is explored in more detail in the following section.

4. MEETING SINGAPORE’S CHALLENGES

i. Supply Commitment
On the supply side, the Aggregator provides a backstop commitment of 3 mtpa of long-term LNG supply, and so energy security is an intrinsic feature of Singapore’s aggregated LNG procurement model. The supply commitment made by the LNG supplier was for a volume up to 60 million tons (up to 3mtpa for up to 20 years).

The Aggregator model provided the flexibility for the gas buyers in Singapore to commit to start receiving firm supply from the Aggregator on a timescale of their choice between the start-up of the terminal in 2013 and 2023. This provided flexibility to manage demand uncertainty and addressed concerns about both the reliability of existing supplies and availability of future pipeline gas imports from Indonesia and Malaysia.
Supply security is accessed through the LNG supplier’s flexible global LNG portfolio
Source: BG Group Strategy Presentation, February 2012

BG’s 3mtpa LNG supply commitment matched the initial planned capacity of the LNG terminal, and was also large enough to cover the projected LNG demand upside and potential for short term disruptions to pipeline gas supplies. BG is able to make such a commitment on the basis of portfolio supply, which has in turn enabled gas buyers in Singapore to reap the benefits of a secure and diversified LNG supply during the start up phase of this new LNG market, without the risks associated with potential production outages or construction delays in a single specific LNG supply project.

There are also a number of mechanisms built into the Aggregator franchise to enhance short-term supply security. Not only can end users access flexibility under existing long-term arrangements by submitting regasified LNG renominations intra-day to the Aggregators automated systems, but during the exclusive phase (i.e. until 3 mtpa of long-term LNG supply is contracted) the Aggregator is also the sole supplier of short-term volumes to Singapore and is putting in place a number of short-term gas sales agreements. Working closely with EMA, Singapore LNG Corporation and gas buyers, the Aggregator has developed a suite of gas sales agreements (GSA) to enable end users to access regasified LNG on a spot or short-term basis. These agreements include a master GSA for small, spot volumes of regasified LNG, pursuant to which transactions could be executed quickly in the event of a gas supply curtailment or other operational issue. There’s also a short-term agreement to enable the commissioning of new power and industrial facilities using regasified LNG, and a stand alone agreement for gas buyers wishing to purchase a large volume of gas from the Aggregator over an extended time period of up to one year.

The amount of short-term volume available from the Aggregator is the difference between the 3 mtpa supply commitment and the volumes already contracted by the Aggregator in a given year. As demonstrated in the following chart, this provides Singapore with the ability to access significant short-term LNG volumes on a firm basis during the Aggregator’s exclusive period, as long-term committed volumes ramp up over the next few years.
The Aggregator model provides a significant short-term volume commitment to Singapore
Source: BG Group, December 2012
Note: 2013 volumes are annualised. In 2013, the LNG terminal will start up in quarter 2 2013. This estimate is based on operating over 8 months.

ii. Supply & Inventory Optimisation
One of the key security enhancing features of Singapore’s Aggregator model is the ability for the Aggregator, closely affiliated with the LNG supplier, to manage LNG storage. In aggregate each month, gas buyers can submit gas nominations to the aggregator to receive the equivalent of anywhere between 2.5 and 4.6 LNG cargoes based on deliveries using 145,000m3 LNG vessels. In order for this potential swing in monthly volumes to be accommodated, the Aggregator must hold sufficient inventory. This in turn increases energy security for Singapore over short time periods, as having access to LNG inventory on site will enable the Aggregator to supply regasified LNG to end users on very short timescales. In effect, the Aggregator can begin supplying a spot volume of regasified LNG to an end user from existing inventory almost immediately, without linking the sale and purchase of regasified LNG to the future arrival date of a specific LNG cargo. To add efficiency to the Aggregator’s inventory management arrangements, the amount of LNG that the Aggregator is able to hold in storage under the terminal use agreement with the LNG terminal varies with the projected level of regasified LNG offtake by end users.

With a range of flexible long- and short-term gas supply products backed up by a portfolio supply commitment, and with efficient day to day inventory management, the Aggregator model has contributed significantly to meeting Singapore’s gas supply security challenges.

iii. Pricing
On the demand side, LNG is competitive against pipeline gas prices in Singapore.

Existing pipeline gas supply contracts into Singapore have their prices indexed to petroleum products, principally fuel oil, while the Aggregator’s long-term LNG pricing is based on an index linked to Brent crude. The relative interaction of these pricing benchmarks is demonstrated in the following chart, which shows the increasing competitiveness of Brent based indexation versus fuel oil indexation since 2005.
Brent based pricing compares favourably with fuel oil indexation
Source: Platts, BG Estimates, December 2012

While benchmark pricing has contributed to the strong interest in LNG in Singapore, there are also clear structural reasons underpinning the Aggregator’s success in ensuring a rapid build up of long-term regasified LNG demand.

iv. Policy
To ensure an adequate level of initial throughput that would reduce investment risk in the LNG terminal, the EMA put in place two key policies to support the build up of LNG demand. It is our view that without the ongoing support of the Singapore government and its energy market agencies and subsidiaries, the Singapore LNG project would not be the outstanding example of launching an LNG market which we see today.

The first policy was targeted at providing the LNG terminal investors and LNG suppliers with clear signals that there would be sufficient demand for LNG. In August 2006, the EMA introduced controls preventing new pipeline natural gas import contracts in order to create LNG demand until the 3 mtpa initial capacity of the LNG terminal is reached. The moratorium on new pipeline gas imports meant that no new pipeline gas contracts can be permitted without the prior approval of the EMA. This in turn meant that regasified LNG could get a foothold in the Singapore market temporarily unhindered by gas on gas competition, making it a favourable investment environment for stakeholders in the Singapore LNG project.

The second key policy that has contributed to the successful build up of demand was to extend the EMA’s electricity market regime of vesting contracts to also cover electricity generated from certain regasified LNG gas sales agreements. The principle aim of Singapore’s LNG vesting contracts is to promote efficiency and competition in Singapore’s power market, and to prevent the potential abuse of market power by generation companies with significant market share.

Under the vesting scheme for power generated from regasified LNG, Singapore’s generation companies are committed to produce a specified quantity of electricity at a specified price, the vesting contract price. The vesting contract price is based on the long run marginal cost of the most efficient power generation
technology that accounts for more than 25% of Singapore’s total electricity demand and the regasified LNG price.

The EMA made it compelling for the generation companies to enter into vesting contracts, and regasified LNG vesting contracts were broadly taken up across the industry.

The success of this second policy in ensuring adequate throughput at the LNG terminal is demonstrated by the fact that almost half of the Aggregator’s committed sales of regasified LNG into Singapore are through agreements linked to vesting contracts in the power market, and gas will flow under the majority of these agreements from day one of commercial operations at the LNG terminal.

**Incremental Gas Fired Generation Capacity**

![Graph showing incremental gas fired generation capacity from 2012 to 2014.]

*Significant investment in high efficiency gas fired generation coincides with the arrival of regasified LNG and the start of regasified LNG vesting contracts*

*Source: Tri-Zen Consulting, BG Group Estimates, May 2012*

We also note the significant contribution that this policy, together with the introduction of LNG, has made to encouraging investment in gas fired generation in Singapore’s power sector. In the two years from mid 2012 to 2014, over 3,700MW of gas fired generation capacity is scheduled to come online, of which more than a third is the repowering of older, less efficient steam turbines. For a market with a 2011 peak demand of just over 6,500MW, this is an impressive commitment to the most efficient gas generation technology available, underwritten by the EMA’s policy support for LNG through aggregation. This physical build out of generation infrastructure is the surest evidence of sufficient initial throughput reducing investment risk in the LNG terminal.

v. Consolidating Demand

When designing a framework by which all of this new demand could procure LNG cargoes, there is a clear issue to overcome in the fragmented nature of all the component parts of Singapore’s initial LNG demand. The following chart shows the contracting activity undertaken by the Aggregator with gas buyers on a long term basis (supply period greater than 10 years).
The Aggregator manages over 15* small gas sales agreements on a long term basis
Source: BG Group, December 2012
*Includes forecast GSAs

The Aggregator is obligated to provide a firm offer of gas supply, up to the 3 mtpa franchise limit, regardless of the size of the requested volume. The smallest volume under a single long term GSA is less than the equivalent volume of a single LNG cargo consumed over an entire year, and consequently there are significant gains to be made in the efficient utilisation of infrastructure by drawing this throughput volume together under a single Aggregator. This allows for efficiencies in LNG cargo scheduling, storage utilisation and working capital requirements; benefits which flow through completely to the individual gas buyers, via the Aggregator, in the form of greater offtake flexibility and lower unit costs.

And yet it is in the sale and purchase of short term volumes that the Singapore Aggregator model may yet provide the greatest advantage. The Aggregator will enable even the smallest potential gas buyer in Singapore to access and take advantage of global LNG spot market pricing, even though that gas buyer would be unable to access the LNG spot market directly (i.e. without aggregation). This is because currently, no single Singaporean gas buyer has the physical capacity to purchase, store and consume an entire LNG spot cargo over a commercially viable period. As the chart below demonstrates, Singaporean gas buyers can request, and the Aggregator will provide, a firm offer for any volume of gas, a fraction of an LNG cargo equivalent or otherwise, on a spot market basis.
Through aggregation, Singaporean gas buyers can purchase a fraction of an LNG cargo* on a spot basis. 

* LNG cargo = 145,000m3 LNG. Chart includes forecast GSAs.

As previously discussed, it is also possible under the Aggregator framework for regasified LNG to be delivered to gas buyers prior to the Aggregator receiving delivery of a back to back purchase of LNG from the LNG supplier, potentially enabling the rapid short term supply of regasified LNG out of existing storage. This is because in an aggregated framework, the Aggregator need not link a spot purchase of gas to the arrival date of a specific spot cargo of LNG.

The flexibility of gas buyers to choose any contract volume, start date and ramp up rate stems from the Aggregator’s ability to flexibly reorganise it’s cargo delivery schedule and inventory position. This in turn comes from the Aggregator franchise design itself. The exclusive right to aggregate all long and short term LNG demand prior to reaching 3 mtpa provides the Aggregator with an existing stream of cargo deliveries and sufficient inventory to reorganise and reoptimise in the first instance.

In addition, once gas sales agreements have been executed, the Aggregator model continues to add flexibility through commercial operations. A unique feature of gas sales agreements in the Aggregator franchise is that each individual downstream arrangement contains more flexibility than the aggregated sum of the parts, taking advantage of the diversity created by the independent actions of individual gas buyers for the benefit of the aggregate.

vi. Maintaining Market Price

While satisfactory pricing conditions, government policy commitments and the benefits intrinsic to the design of Singapore’s aggregate procurement framework were in place, the wide range of potential LNG demand during the early stages of the project also needed to be addressed by the procurement framework.

LNG pricing moves over time with prevailing supply and demand conditions. The exclusive phase of the Aggregator franchise was contemplated to last up to 15 years, over which time many new supply waves and demand shocks could impact the global LNG market and influence pricing. The Aggregator, with the approval of EMA and subject to a gas buyer challenge mechanism, has the ability to refresh pricing over time.
to ensure that at any point in time, Singapore is paying a competitive market price for each new purchase commitment.

In the case of the Aggregator it seems that the threat of competition is as great as competition itself, and as such the gas buyer challenge mechanism has yet to be tested.

vii. Market Development
With its exclusive franchise and gas buyer price challenge mechanism, the Aggregator model has provided Singapore with supply security and competitive pricing. Yet in order to sustain and build competitiveness over the course of the entire supply period, there needs to be innovation as well as challenge, and the Aggregator plays an important role in Singapore’s ongoing gas market development.

Singapore is a geographically advantaged nation, conveniently located on trade routes to traditional East Asian LNG markets for those looking to optimise LNG shipping or storage, and strategically located near to a number of isolated, emerging LNG markets in Southeast Asia for those considering breaking bulk for re-export. With an impressive LNG terminal infrastructure plan to match these ambitions, time will tell to what extent a physical LNG hub in Singapore will be utilised by the market.

The Aggregator holds a unique position connecting the global LNG market and the Singapore gas market. This allows it to provide services that bring volume flexibility and price optimization benefits to our customers.

![Schematic illustrating the potential for fuel competition within Singapore](Source: BG Group, November 2012)

A specific example of this is the potential diversion of LNG cargoes. In times of oversupply in Singapore or of tightness in the global LNG market, there are opportunities to put the Aggregator to work “in reverse”, aggregating the individual flexibilities of a number of gas buyers in order to enable the diversion of an LNG cargo - and lowering Singapore’s energy costs in the process.

5. THE NEXT PHASE OF LNG PROCUREMENT IN SINGAPORE
The single, exclusive Aggregator model has served alongside significant policy support to overcome many of the supply, demand and market development challenges faced by Singapore towards the end of the last decade.
As it stands today Singapore is facing up to new structural challenges. BG Group forecasts that Singapore’s gas demand in 2025 will rival that of levels seen in India and China today. But the nature of this incremental regasified LNG demand will be different from that seen by the current Aggregator.

![Forecast LNG Demand to 2025](image)

Demand in 2013 to 2025 is principally based on the decline of existing pipeline gas imports
Source: Wood Mackenzie, BG Estimates, November 2012
*Throughput capacity forecast at the SLNG Terminal, Jurong Island

The now reasonably predictable picture of incremental LNG demand is forecast on the belief that pipeline gas imports will be steadily replaced with LNG when substantial existing arrangements expire over the coming decade. Incremental demand that was up until now characterised by small, uncertain, and fragmented components, will in the future be replaced by an incremental demand built mainly on the need to backfill existing large pipeline gas supply contracts when they begin to expire from 2018.

The key difference looking forward from today is that much of the future aggregation is already done, through the existing pipeline gas importers. The incremental demand profile is in fact comparable to the historical build up of the portfolios of some of the world’s largest and most experienced LNG buyers, as demonstrated in the following chart.
Comparing Singapore’s future LNG demand with historical portfolios of TEPCO and TG
Source: BG Estimates, November 2012
*Note: Singapore x-axis scale spans 15 years versus 45 years for TEPCO/TG

In the face of such rapid contracting activity for long-term LNG supply from the Aggregator, the EMA began a consultation process in March 2012 to decide on the next phase of LNG procurement, and at the time of writing no decision has yet been made. The nature of the game has changed, and with LNG terminal investment substantially underwritten by high initial throughput volumes, future LNG demand more predictable than in the past, and innovative gas supply products and trades under discussion in the market, the time is right to move toward a competitive LNG procurement framework.

Whatever the outcome of the ongoing consultation process, BG Group, both as LNG supplier and the first Aggregator, is proud to continue to support the development of the Singapore LNG market.

6. CONCLUSIONS

The Aggregator model is a solution that is tailor made to Singapore’s gas market needs. Alongside unwavering government support, the Aggregator model has been critical in underwriting the establishment of world class LNG import infrastructure.

A group of competitive gas buyers needed to group their incremental demand together during tight LNG market conditions in order to credibly and competitively access the global LNG market. A supply commitment from the Aggregator met the market’s need for energy security, while the single Aggregator interface between multiple stakeholders has led to efficiencies at the LNG terminal.

Looking forward, the aggregator has a leading role to play in market development to generate and capture new opportunities.

The successes of Singapore’s current LNG procurement framework could be adapted and applied elsewhere. There are more than 30 countries (as at November 2012) considering joining the world’s existing club of LNG importing nations.
The evidence and experience to date from the Singapore example is that appointing an Aggregator is a credible and efficient solution to kick start a new market, and may create unexpected opportunities to add value and security of supply in the future.