



# Philippines Natural Gas Master Plan – LNG purchasing and hub opportunities

Phase Two Public Consultation

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Prepared for:



THE WORLD BANK

Supported by:



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# Disclaimer

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*The World Bank commissioned the study, supported by AustralianAid, but the work is being done for DOE.*

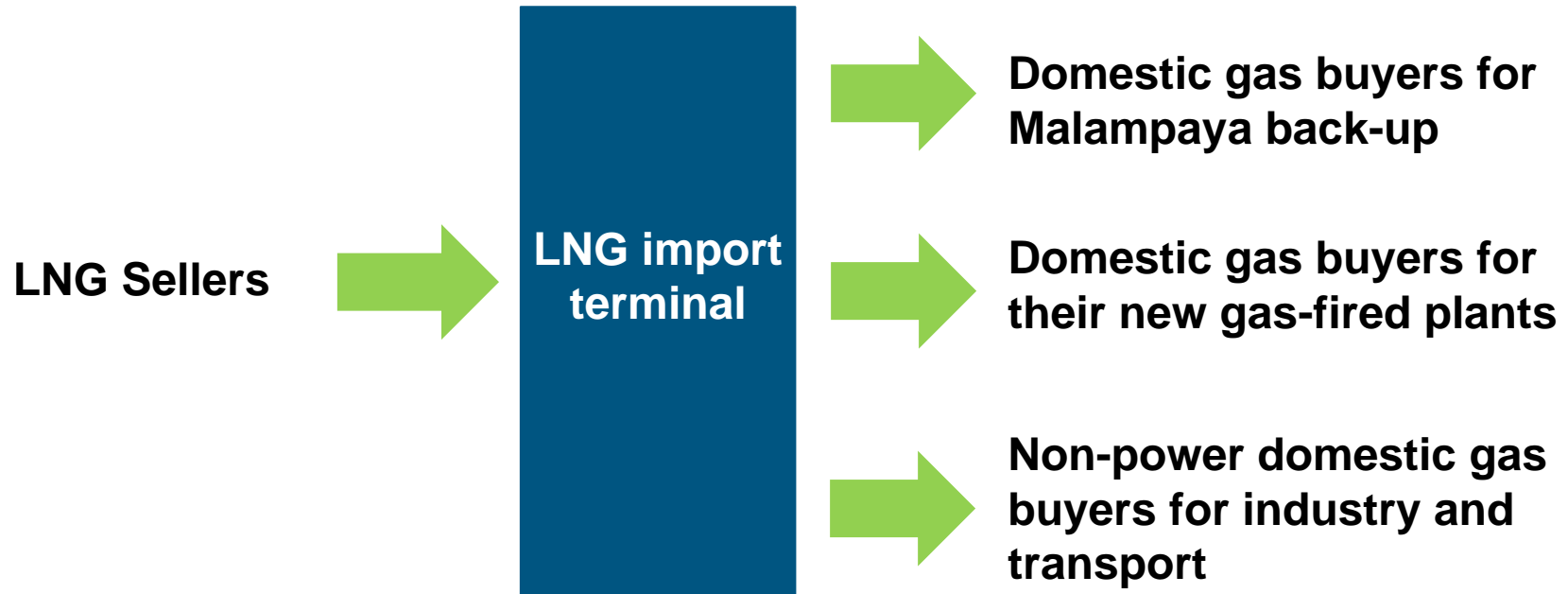
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*DOE has only recently received the Phase Two report.*

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As discussed earlier, the recommended transaction structure involves the separation of the terminal from both new power plants and the gas purchases

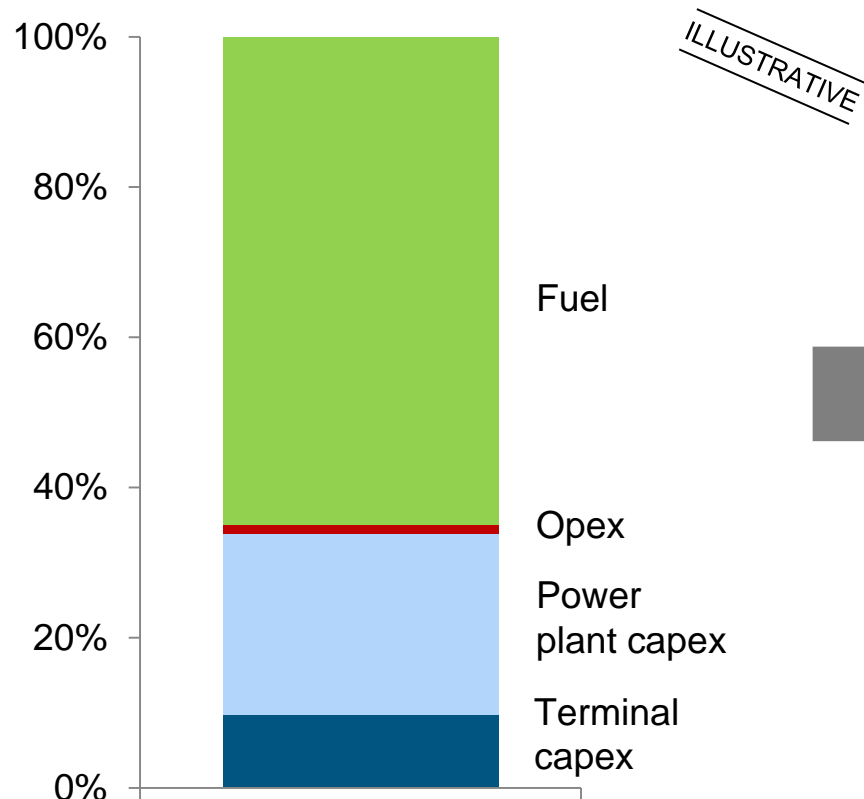
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- The LNG terminal needs to indiscriminately serve the needs of different kinds of potential buyers of capacity: including international LNG sellers and domestic gas buyers
- The terminal owner/operator does not need to be involved in gas purchase negotiation as it requires a very different set of skills

# Why is gas purchasing important? Because it represents the vast majority of costs over the project's lifetime

## Present value of the total lifetime costs



- Fuel procurement strategy is a key value driver
- Flexibility has significant value
  - Each MWh of under supply incurs the cost premium between gas and oil fired plant
  - Each MWh of over supply (ToP) incurs the cost premium between gas and coal fired plant

# Lessons to be learnt from existing, committed and planned terminals



- FSRU solutions can be implemented rapidly
- Separate LNG procurement from the ownership of LNG terminal
- Test the market regularly



The fundamental issue is the tension between the ideal gas purchase requirements and conventional approaches

### **Ideal LNG contract for the Philippines**

1. Flexibility with minimum or no take-or-pay term and right to diversions
2. Potentially small volumes (< 500 ktpa) in any given year
3. Pooling of LNG requirements for a few small buyers might be needed
4. Short-lead time to deliver LNG to the Philippines for forced outages of Malampaya gas field

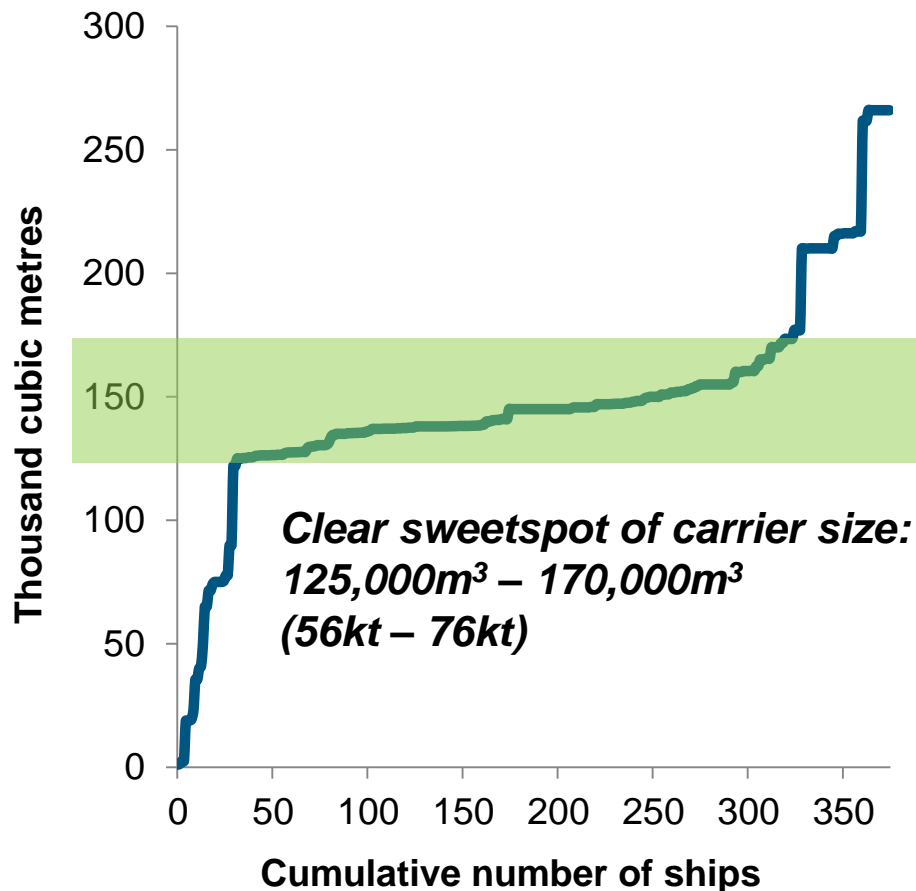
### **Conventional Asian LNG contracts**

1. High take-or-pay terms (80%-95%)
2. Volume typically > 500 ktpa
3. Most Asian buyers typically import for their own use
4. Most existing Asian LNG buyers use spot cargos to meet their unexpected LNG requirement

The situation in the Philippines means that there is significant value in procuring LNG differently to the conventional Asian LNG contracts signed

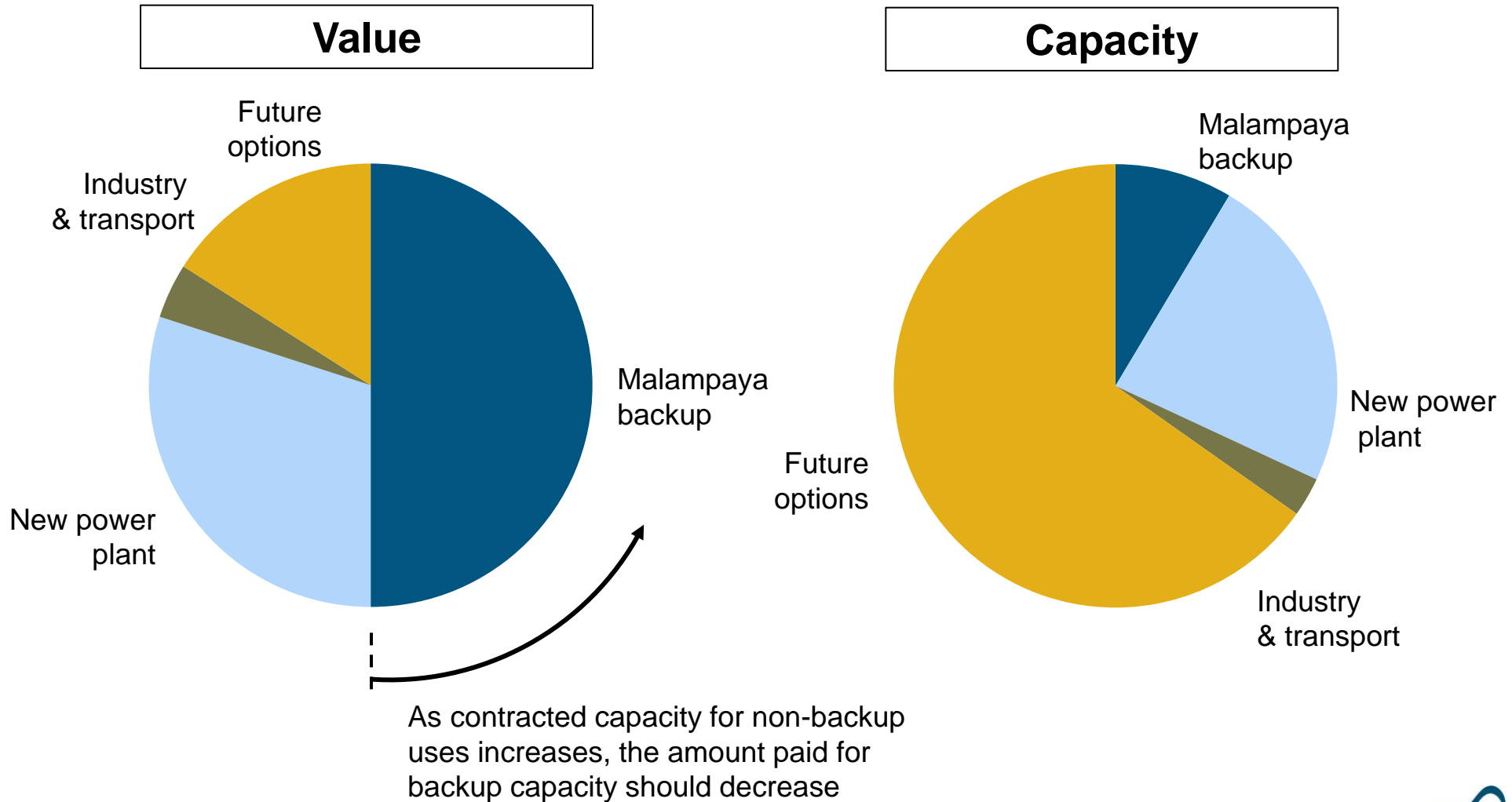
The value of being able to accommodate full-sized cargoes appears to outweigh the costs of a slightly larger FSRU

### Number of LNG carriers by size



- Technical assessment suggests that an FSRU would be the least-cost option
- The size of FSRU clearly has to match the gas purchase requirement but there is also value in sizing it to permit flexibility for future growth
- The ability to accommodate at least 'standard'-sized carrier is particularly valuable if the buyers are to access the short-term LNG market
- Or to divert unneeded cargoes elsewhere

Malampaya backup payment could cover a reasonable portion of the terminal capacity value, with significant available capacity for future growth options

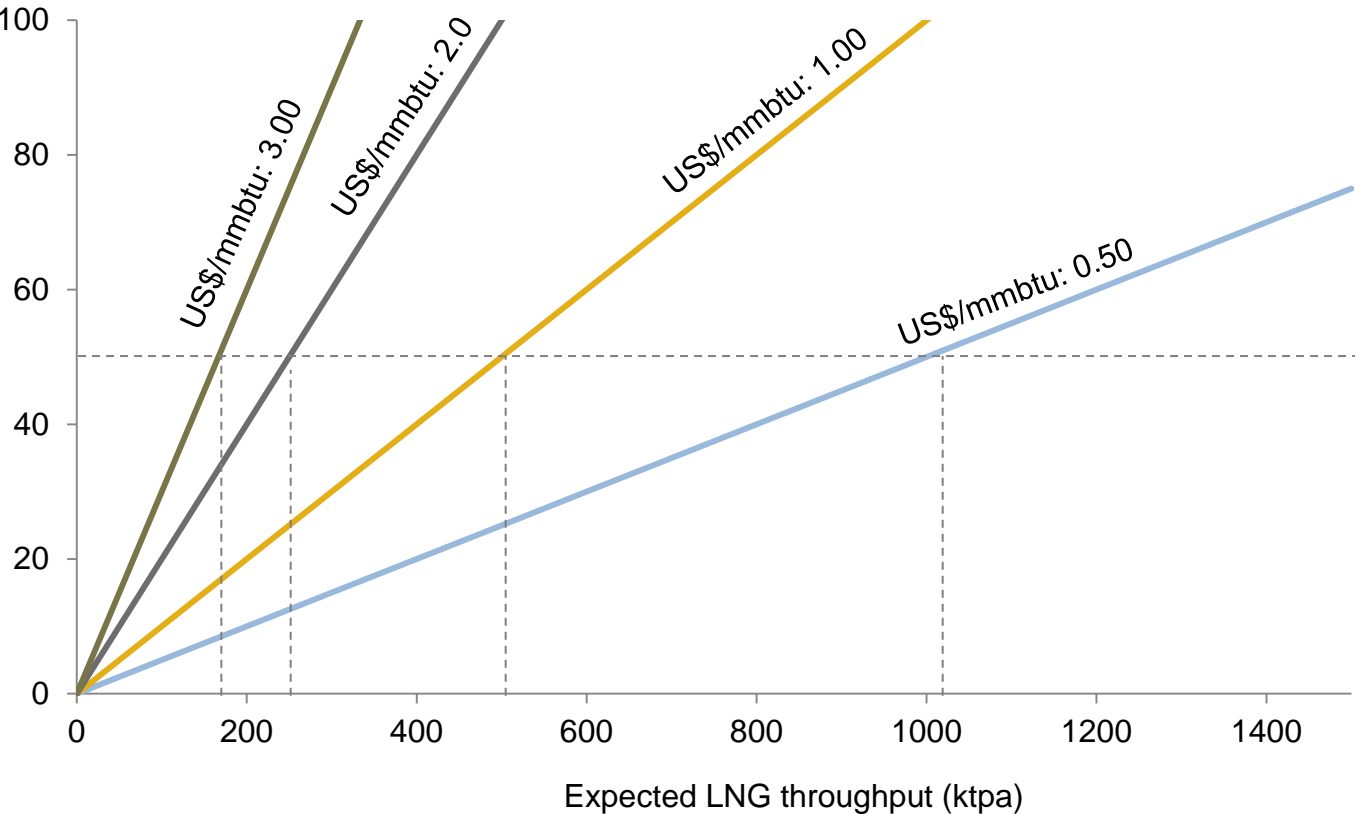




The capacity rights should be attractive to a wide range of interested parties because of the significant profits from selling LNG

**Net margin on LNG at different throughputs in order to cover one year's capacity rights**

Proportion of required capacity payments (%)



Source: TLG analysis

## Key requirements of a suitable gas purchase contract for the Philippines

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1

**Volume flexibility with low annual ToP**

2

**Relatively small size**

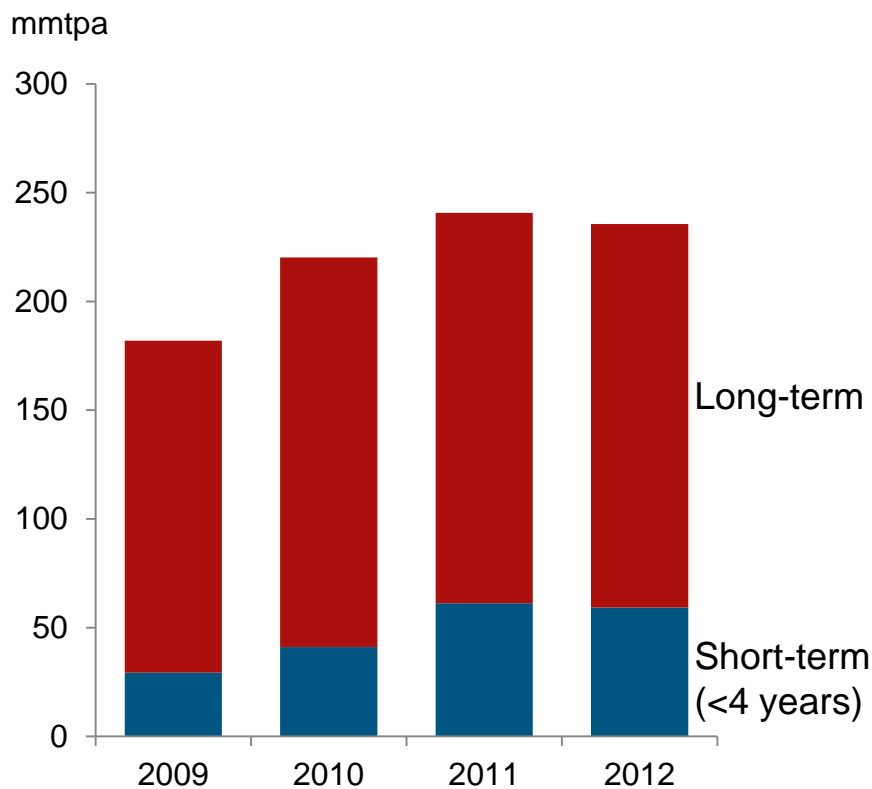
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**Logistical flexibility to allow sufficient co-ordination for optimally using the FSRU**

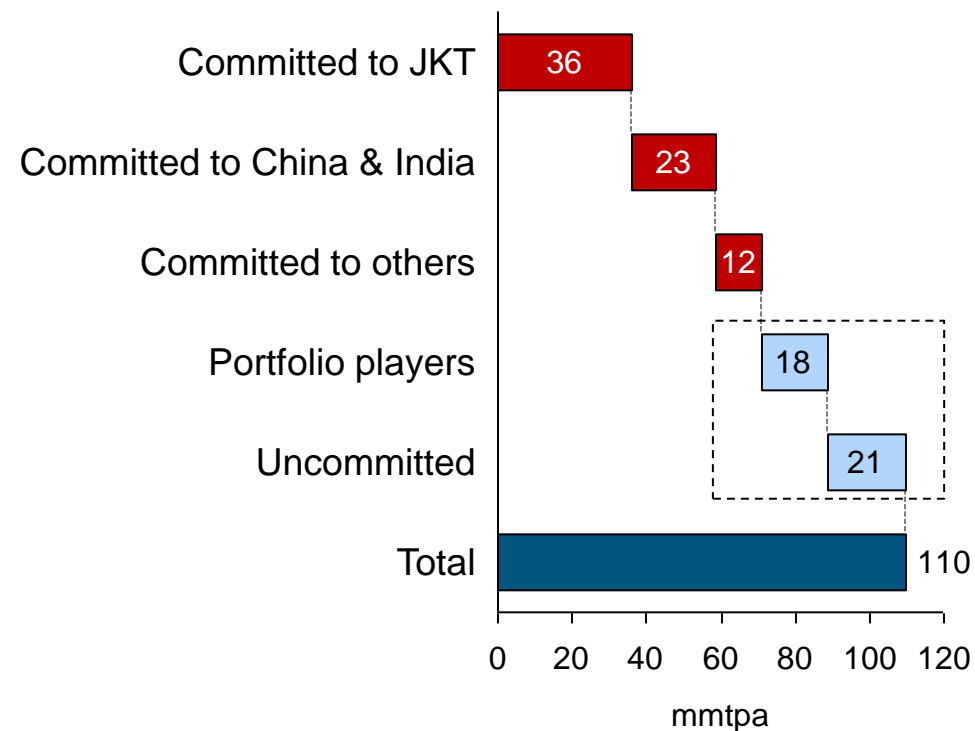
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## Flexibility: Short-term trading set to grow, which will benefit the Philippines

Recent trend in short-term trading of LNG

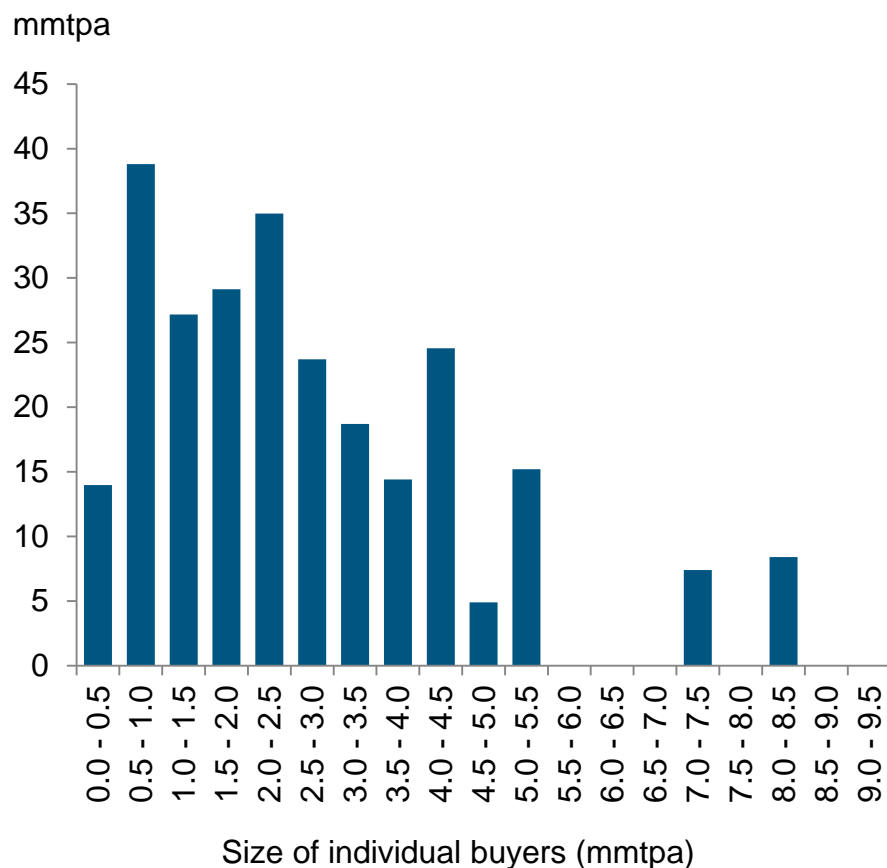


Portfolio or uncommitted sources of new LNG



## 2 Size of contracts: The relatively small size of national demand should not be a major barrier to buyers securing supplies in the market

### Volume of contracts with differently sized buyers



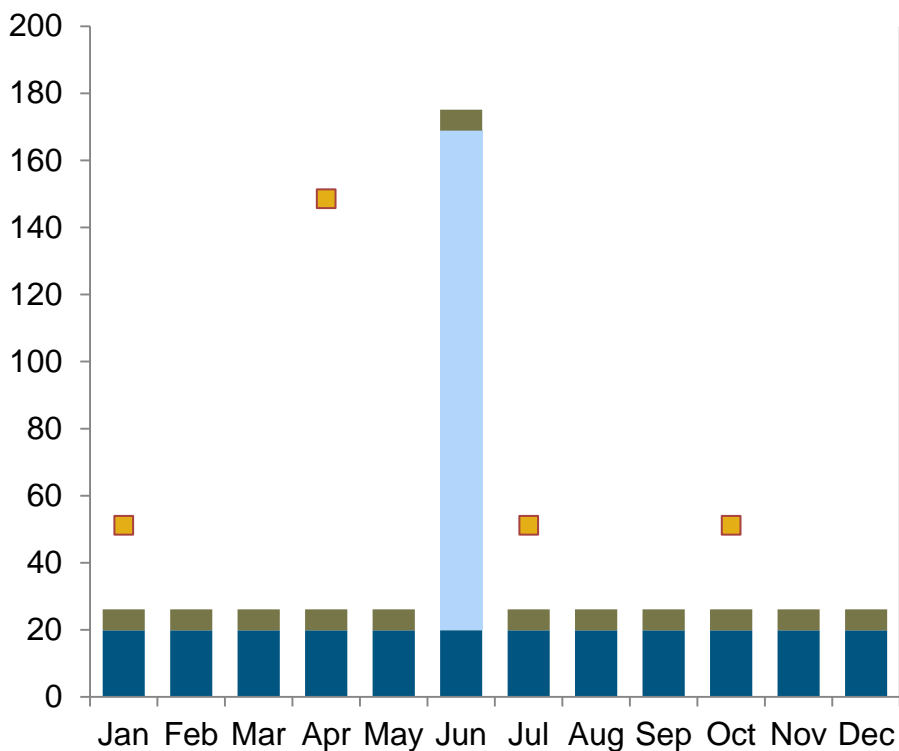
- There are many existing contracts for less than 1,000 ktpa
- However, some of the smaller contracts (c.200-300ktpa) are from well-established Japanese buyers that are 'tops-ups' of a much larger overall LNG requirement or part of a group purchase
- Combined volumes of about 0.5 mmtpa should be sufficiently large to attract serious interest from sellers

Pooling the total contractual volume of domestic LNG needs would increase the purchasing power and expand the range of options

### 3 Logical flexibility: Sharing of cargoes among the domestic gas users could provide more flexibility and save cost

#### Illustrative monthly deliveries and consumption

Kilotonnes



Number of cargos

ILLUSTRATIVE

- New gas fired plant
- Malampaya back-up
- Industry & transport
- Deliveries in quarter

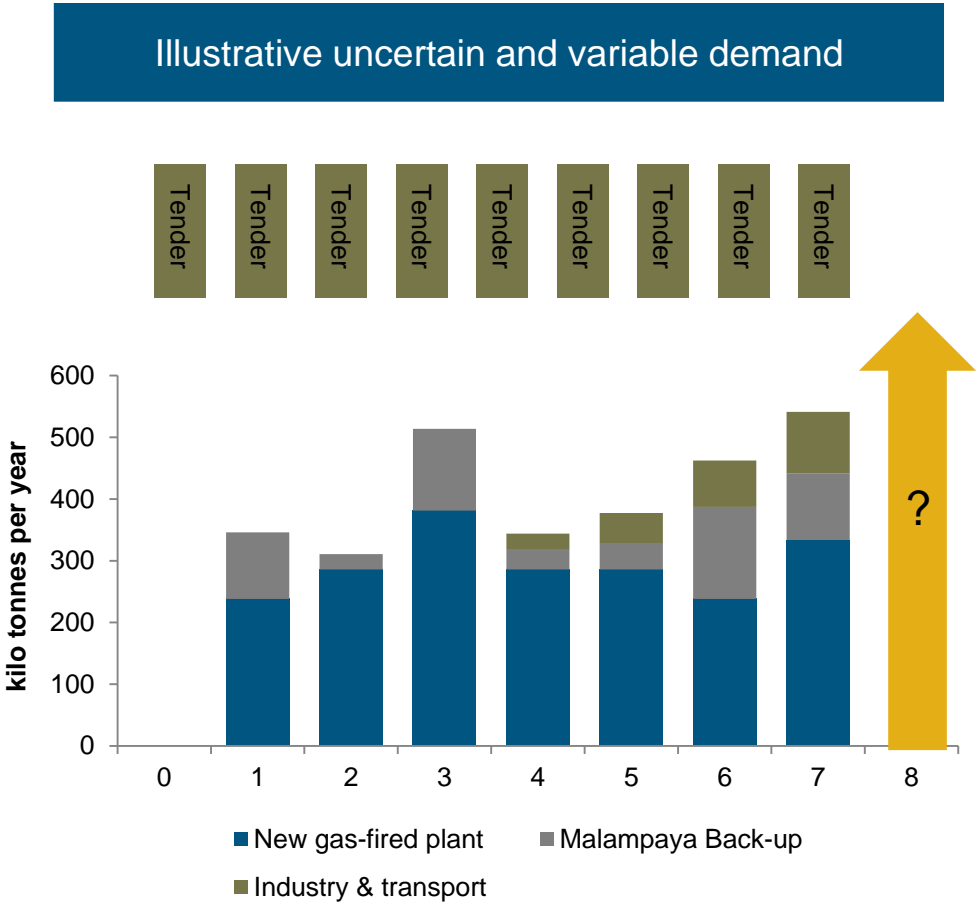
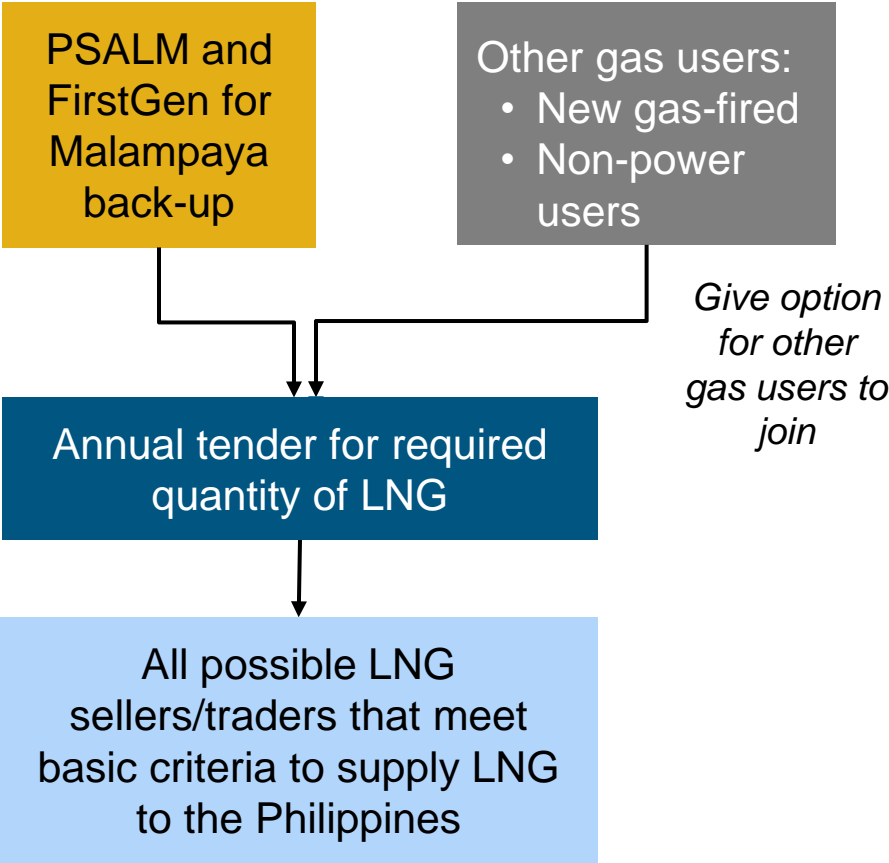
- Pooling buy-side demand will make it easier for the seller(s) to schedule deliveries of standard-sized LNG carriers
  - This has implications for economic efficiency of shipping costs as well as operational efficiencies
- Clear rules are required to establish pooling or borrowing and lending mechanism
  - These will have to address, for example, the varying cost of each cargo
  - Or agree on one price for the year

### Taking these factors into account an LNG procurement strategy would need to:

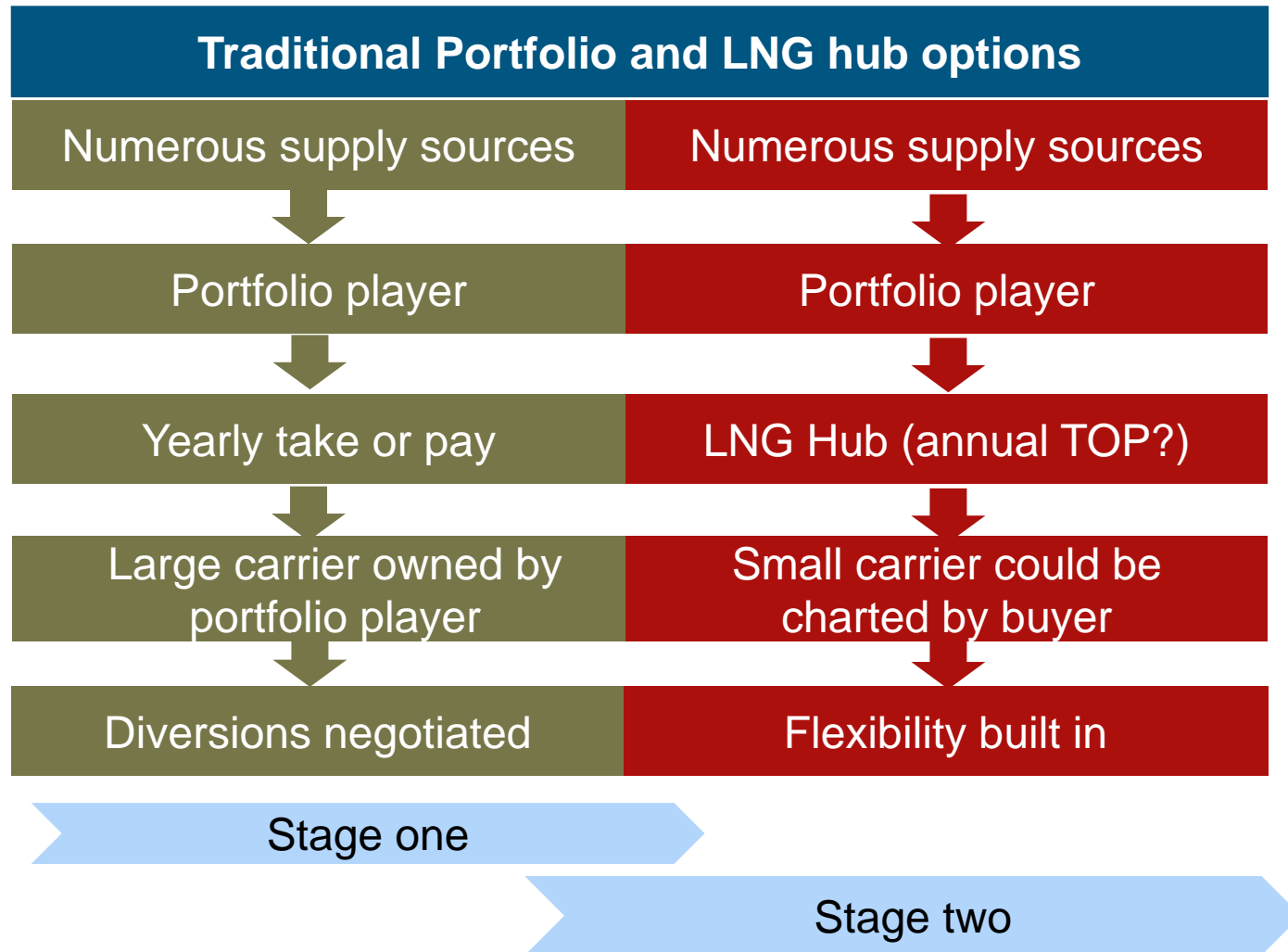
- Encourage aggregation of demand to facilitate delivery standard cargoes of LNG
- Not close the door on speculative purchases of terminal capacity by those wishing to try and enter the market
- Undertake regular tenders for LNG purchasing to both test the market and provide near-term certainty of least-cost



# Annual tender process bringing together supply aggregator(s) and buyers with flexibility in supply every year



## LNG could come from portfolio players or in time purchases from LNG hubs



# Terminal-use agreements can address the key issues that arise from handling many different users

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## Operational considerations

- LNG vessels
- Berthing timetable
- LNG borrowing and lending
- LNG specification
- Unloading time
- Nomination for regasification

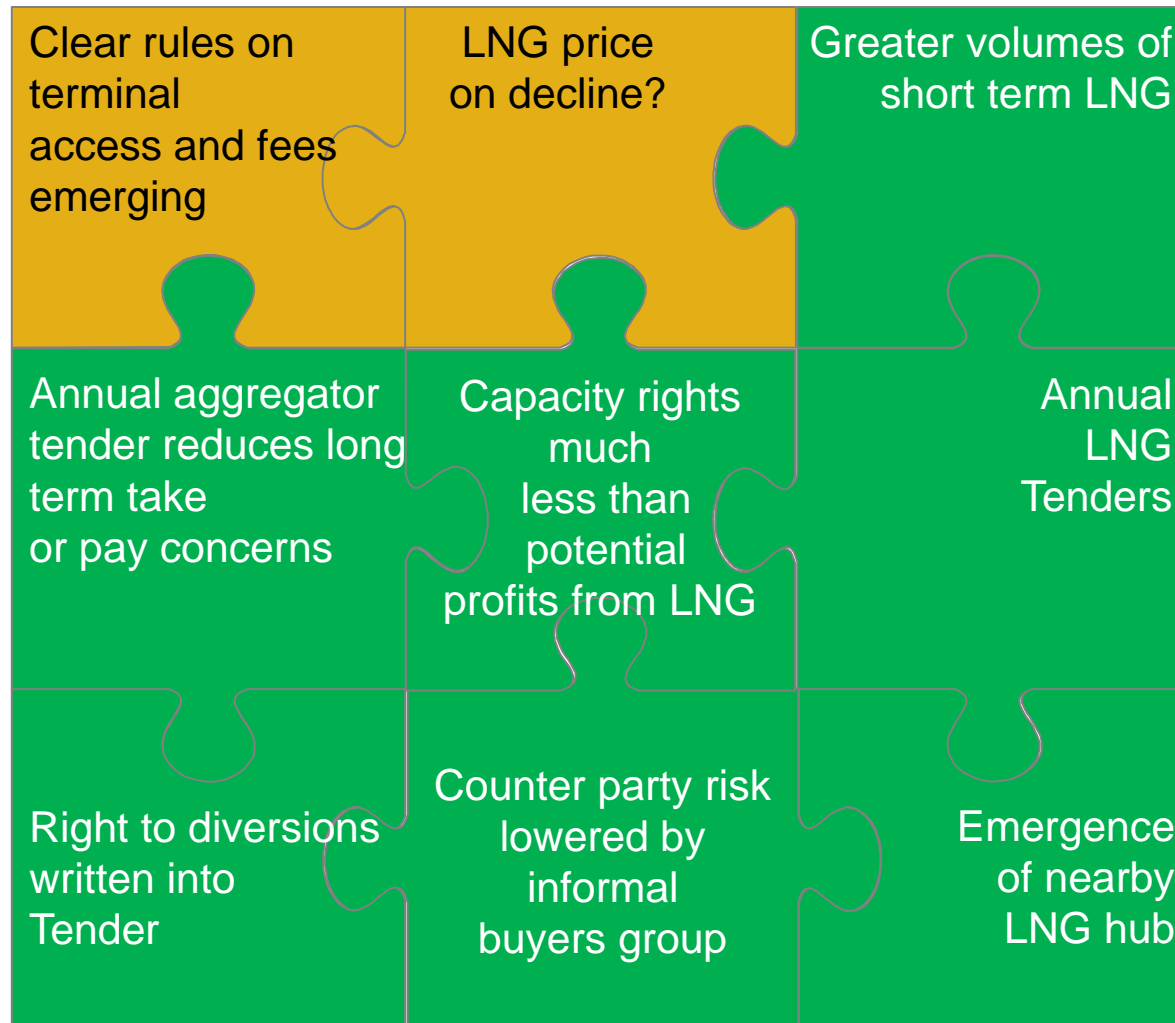
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## Other considerations

- Insurance
- Incremental costs
- Dispute resolution

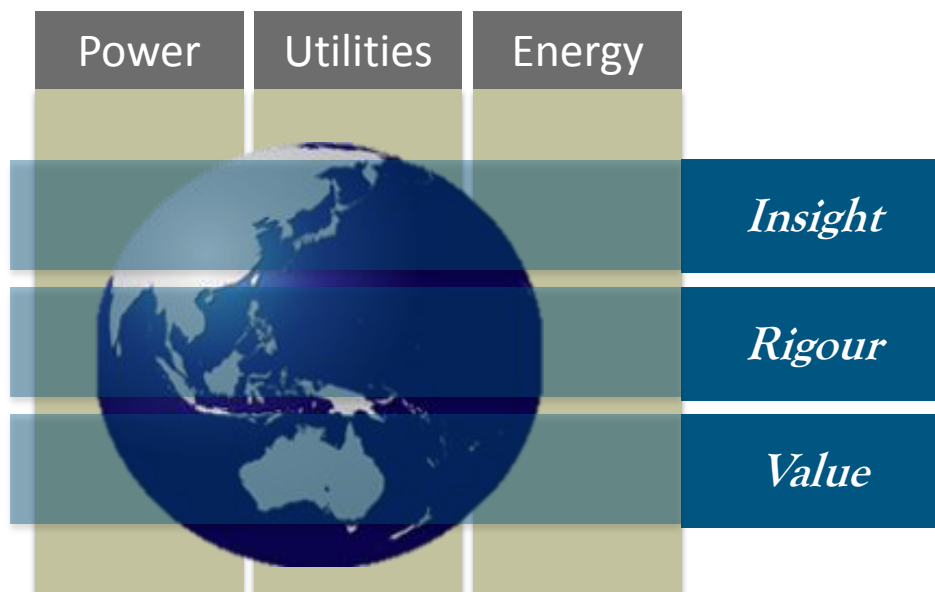
## Wrap up

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# Thank you

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**BACKUP**



# Procurement options

## Choices on offer

- **Buying LNG directly via long term contract**
  - These have been compared to a “virtual pipeline” linking a specified source of gas with a specified buyer at one receiving terminal. These contracts are usually delivery ex-ship, or if free on board, then will have diversion exclusions written into the contract to prevent the buyer from reselling the LNG elsewhere. Thus avoiding potential competition for new volumes of LNG that maybe marketed by the seller.
  - **We would recommend that for the Philippines where demand is uncertain and given the other favourable dynamics that are evolving in the global LNG market that traditional LNG long term contracts, with high levels of take or pay, and destination clauses are avoided..**
- **Buying annually LNG from a portfolio player**
  - An increasing amount of LNG comes from portfolio players such as Total, Shell, GdFSuez, BP and the BG Group. It is usually taken onto their books and they will sell it on short term basis or else lock in longer term contracts as market conditions dictate. Some degree of flexibility.
- **Buying annually LNG from an nearby LNG Hub**
  - Singapore has clearly marked out its ambitions to become a LNG trading hub. It is building more storage capacity than it needs for its own domestic use. Moreover, it is adding jetties and tanks specifically designed for reloading LNG carriers. Pavilion Energy has contract for 0.5 mmtpa from European portfolio supplier what end market? Trading?
  - Vopak LNG terminal planned for Pengerang on the southeast tip of Malaysia. They have teamed up with the local energy logistics company Dialog. Phase one with a tank of 170,000 m3 is due for commissioning in 2016 and phase two with another 170,000 m3 in 2018.

## Singapore LNG Terminal



Source: Singapore LNG

## Pengerang LNG Terminal



Source: Vopak

# Terminal use agreements – key items for consideration

<b>LNG vessels</b>	Define the type of LNG vessels that are acceptable for offloading and reloading at the terminal. One option that should be kept part of the design is the reloading small LNG carriers to serve small demand elsewhere in the archipelago.
<b>Berthing timetable</b>	A procedure for notification of arrivals and a method to deal with variances from that timetable should be written into the agreement from the start.
<b>Unloading time</b>	A formula for the amount of time LNG carriers of different sizes have to offload and reload should be specified, and mechanisms for dealing with variance of those times should be specified.
<b>LNG specification</b>	The tolerance for the composition of the LNG should be specified and a method of adjusting for offloaded LNG that is different from that specified by the seller should be agreed in advance. This is especially important for Batangas FSRU as it is very likely that LNG would be borrowed, lent or pooled.
<b>LNG borrowing and lending</b>	A system will probably need to be devised that allows for borrowing, lending or else pooling of LNG. Several customers' LNG will be stored in the one tank. At times of high demand such as a planned Malampaya outage, LNG already in the FSRU may need to be used as back-up fuel by existing power plants in advance of other cargoes of LNG arriving.
<b>Incremental costs</b>	The time that LNG is kept in storage on the FSRU is subject to certain short run costs such as re-liquefying boil off gas and these costs need to be specified in a set formula.
<b>Nomination for regasification</b>	The different users of the terminal need to set out in advance what their requirements are for nomination for regasification.
<b>Insurance</b>	The FSRU owner and operator needs to be covered. The LNG Carrier should also be insured particularly for any damage caused in port or to the FSRU.
<b>Dispute resolution</b>	This could include several options. The first being negotiation, local arbitration mechanisms, international chamber of commerce expert determination, and lastly litigation.