Gas Wholesale Supply and Pricing

AUSTRALIAN INSTITUTE OF ENERGY SEMINAR
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Scope

1. Demand overview – domestic & LNG (eastern Australia)
2. Gas reserves
3. Production capacity
4. Gas market-recent contracts and price outcomes
5. Longer term projections
6. Victorian position
7. Market reform/development
Eastern Australian Gas Infrastructure

Legend:
- Conventional Gas
- Coal Seam Gas
- Existing Pipelines
- Proposed Pipelines
Demand-Supply Eastern Australia

- Well-developed gas market and infrastructure.
- Demand 676 PJ in 2013.
- Supply across seven basins
- Almost fully interconnected transmission network.
- 2P reserves 46,170 PJ at the end of 2013
- 68 years supply
- Most proved up to support LNG exports which will triple gas demand and reduce supply to 22 years.
Three LNG export projects are nearing completion on Curtis Island, near Gladstone: QCLNG; GLNG; and APLNG.

Each project of two LNG trains, delivering 3.9 to 4.5 Mt of LNG per year. First deliveries scheduled from Q4 2014 to 2016.

A fourth project, Arrow Energy, remains in the planning phase and may build a single train on an existing site.
Why LNG? – CSG reserves growth

![Graph showing CSG reserves growth from 1996 to 2013 with 3P, 2P, and 1P lines.](image)
Demand projections – base case
Gas Markets

- Bi-lateral term contracts at both wholesale and retail levels
- Organised spot markets for network imbalances.
- Spot markets provide price discovery but not any forward price indication
- Effective financial forwards markets have yet to be established.
- New contract prices, or rather estimates of them, provide the best guide to future gas prices.
LNG Impacts

- LNG exports start late-2014. Will connect gas supplies with high volume, high value East Asian market.

- Domestic gas market impact:
  - The expectation that all eastern Australian gas can be sold at “export parity” prices much higher than legacy domestic gas prices
  - Shortfall in domestic gas as LNG projects direct supply from their own acreage to LNG and have also pre-purchased third party gas.
LNG Impacts (2)

- Prices of new domestic gas contracts expected to rise because of LNG.
- Wide range of price levels projected, $6/GJ to $12/GJ, because of uncertainty in key drivers such as future oil prices and export volumes.
- With exports now only 3 months away, some uncertainties regarding the near term have reduced.
- Since 2011 new domestic gas contracts entered for supply in the period from 2014 onwards, under the above influences.
- Uncertainty persists regarding the ability of LNG projects to ramp up production and their need for more third party gas.
The cost of gas, including capital and operating costs, applicable to new gas supply, ignoring lower cost sources already committed, is $4.50/GJ.

This sets the lowest price at which a gas producer would sell gas in a new contract, in a very competitive market.
Gas price factors – LNG pricing and netback

- East Asian LNG prices are linked to the JCC (Japan Customs Cleared Crude) index. For the Gladstone LNG projects the estimated FOB price is in the range $US14.00-14.50/mmbtu in 2014/15 and 2015/16, corresponding to EIA median oil prices.

- The LNG netback value is the FOB value netted back to Gladstone or the wellhead by subtracting liquefaction and transmission costs. These costs are capital intensive so long- and short-run costs are materially different.
<table>
<thead>
<tr>
<th>LNG Netbacks ($/GJ)</th>
<th>2014/15</th>
<th>2015/16</th>
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</thead>
<tbody>
<tr>
<td>Wallumbilla Short-run</td>
<td>$12.14</td>
<td>$12.44</td>
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<tr>
<td>Wallumbilla Long-run</td>
<td>$8.58</td>
<td>$8.75</td>
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<tr>
<td>Moomba Short-run</td>
<td>$10.82</td>
<td>$11.13</td>
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<td>Moomba Long-run</td>
<td>$7.26</td>
<td>$7.44</td>
</tr>
<tr>
<td>Gippsland Short-run</td>
<td>$9.10</td>
<td>$9.40</td>
</tr>
<tr>
<td>Gippsland Long-run</td>
<td>$5.54</td>
<td>$5.71</td>
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</tbody>
</table>
Gas price factors – LNG netback

- Netback values are the maximum values that an export project would pay for third party gas.
- What an export project actually pays depends on relative market power of exporters & gas producers.
- What an exporter pays is the opportunity value for producers.
Gas price factors – market power

- Market power has always been present in the Australian gas market
- Market power has increased since 2008:
  - LNG projects have acquired smaller producers
  - And have withdrawn from the domestic market
- In Victoria only the Gippsland JV has sold new contracts since 2008
Gas price factors – monopoly margin
New domestic wholesale contract prices

- Nine new domestic contracts since 2011 under LNG influence. Price data is based on reviews of statements by seller or buyer financial analysts.

- Price estimates are uncertain but the following trends seem clear:
  - Prices have escalated and range from $5.50/GJ to $10.00/GJ
  - Prices in Queensland still escalating - most recent price is $10/GJ compared to $6/GJ in 2011.
  - Prices in southern states, for gas from the Gippsland JV, are lower than in Queensland but may be set to escalate.
  - Some domestic contracts are oil-linked but others are not.
Estimated recent new contract prices ($/GJ 2013/14)
Jacobs has used its “Market Model Australia – Gas” (MMAGas) modelling tool and associated data to estimate gas prices in all market zones and well heads.

Key assumptions cover: gas reserves; demand projections, including LNG; production costs; existing domestic & LNG contract volumes, prices and durations; transmission network structure and costs; and LNG netback values.
Domestic demand vs contracted gas
Modelled new contract prices, Gippsland Base Case

![Graph showing modelled new contract prices from 2014 to 2025. The graph indicates recent contract prices and Jacobs Base Case. The prices range from $0.00 to $12.00 per GJ.](image)