



**THE NATIONAL GAS COMPANY
OF TRINIDAD AND TOBAGO LIMITED**

Premium Market Impacts on Sustainable Development (?)

Impact of Gas Price on Gas Market Development

presented to

Society of Petroleum Engineers SPE Workshop

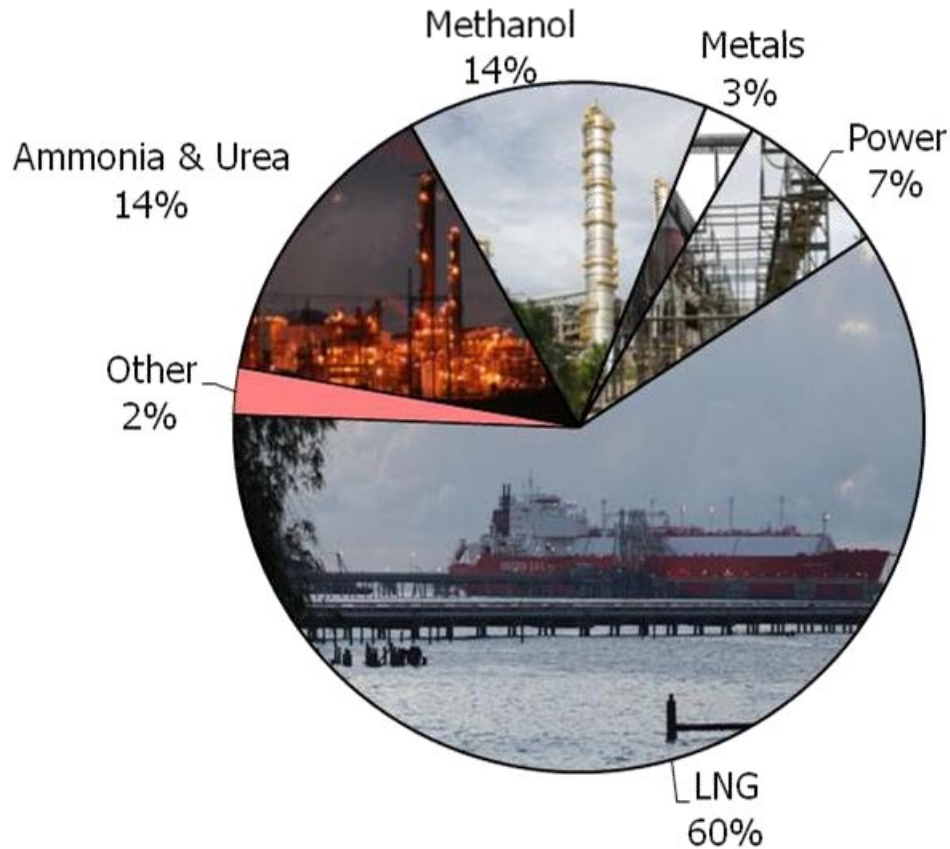
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by:

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Natural Gas Utilisation 2008



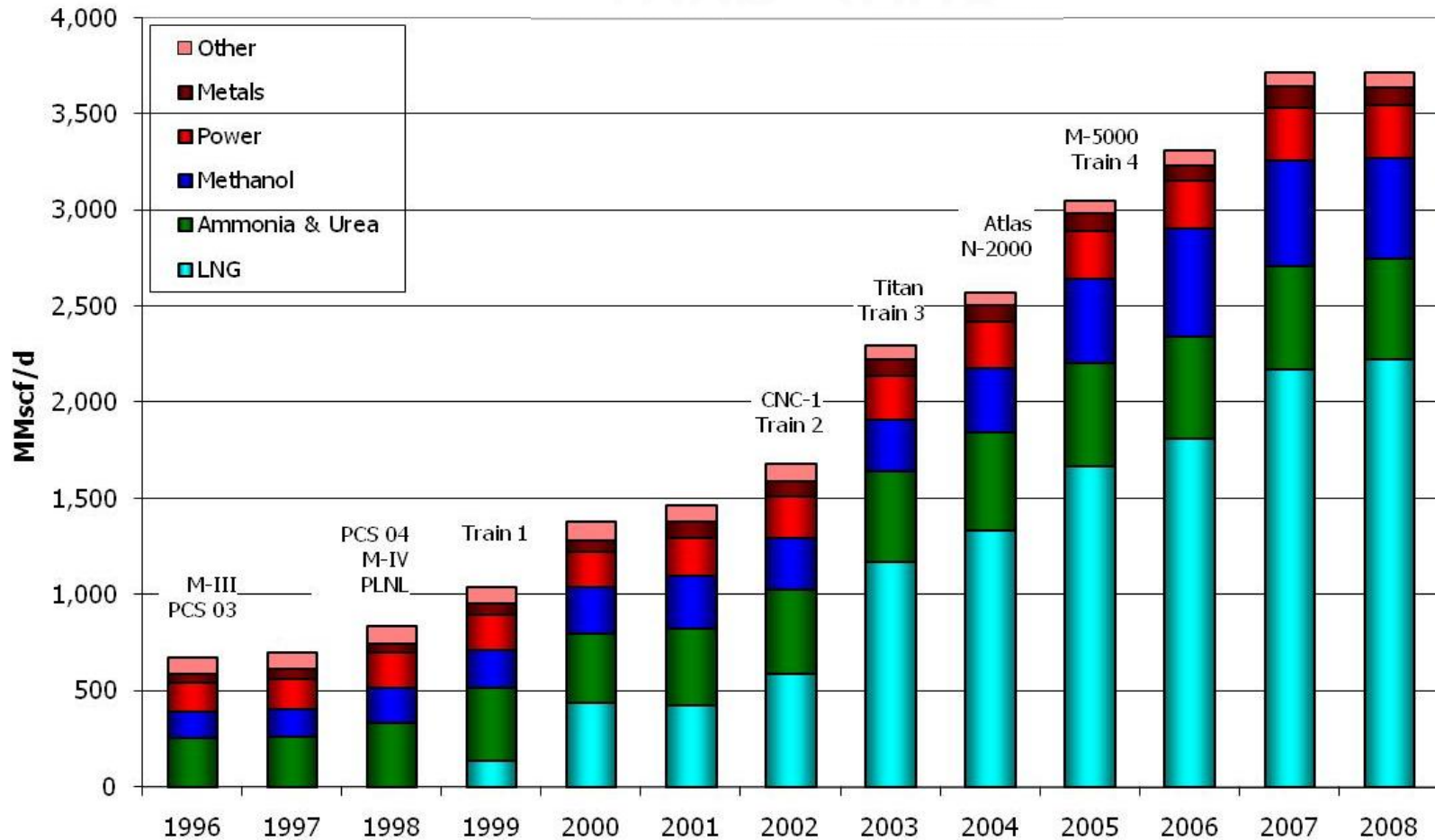
Total: 3.7 Bcf/d

Natural Gas Reserves as at January 01, 2008 (TCF)

Proved	17.0
Probable	7.9
Possible	5.9
Total	30.8

Growth in Natural Gas Usage

1996-2008



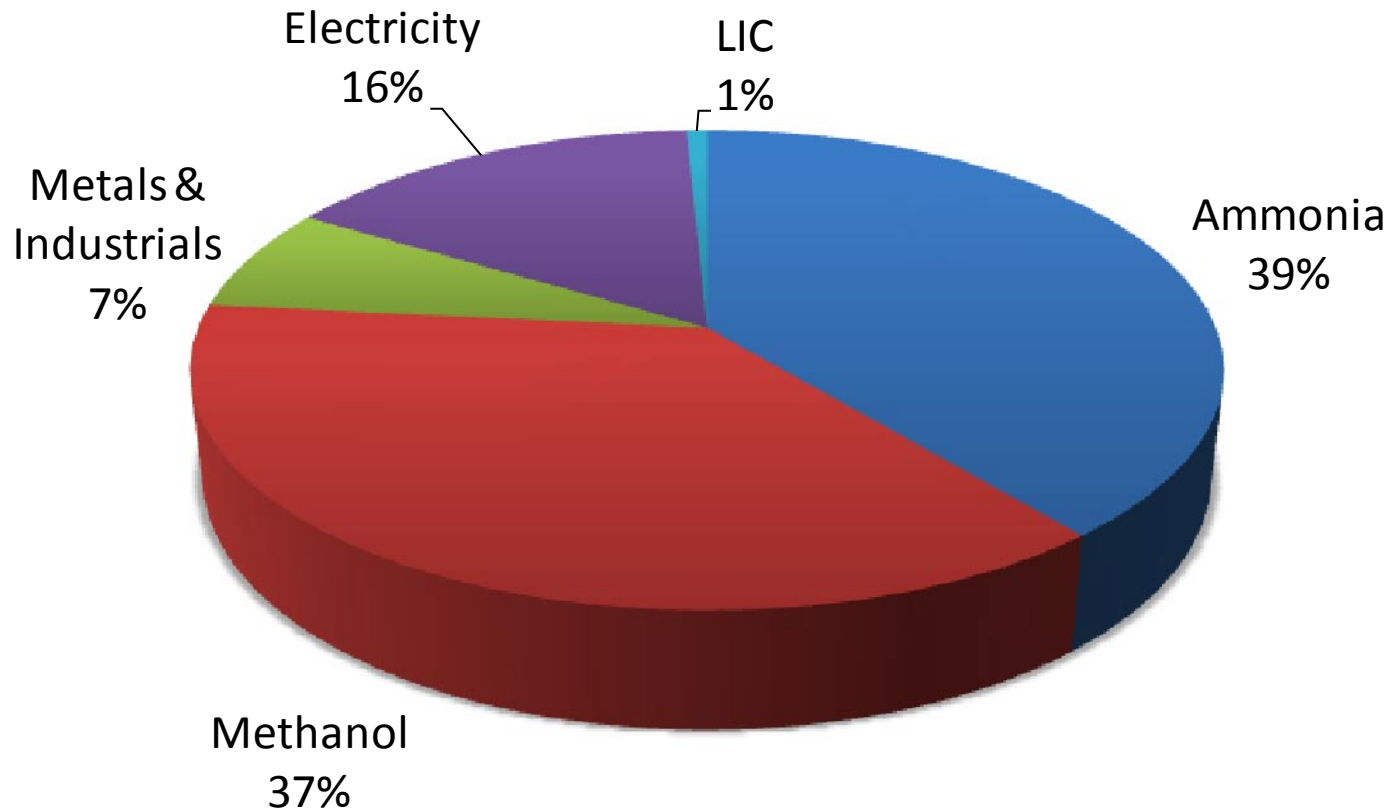
Historical Note

- LNG brought domestic gas production and monetization to a different level
 - Prior to LNG, production increased in increments of 50-80 mmscf/d
 - LNG a different order of magnitude
 - ◆ Train 1 started at 450MM
 - ◆ Train 4 is rated at 800 MM/d
- At current levels there is a “critical mass” serving both sectors
 - So the discussion can now focus on “relative” advantages



Projected Gas Sales 2009

Total projected gas sales 2009: 1,514 MMscf/d



T&T Gas Market in Context

Gas Production : 4000 MMScf/d

■ Export Gas : 2400 MMScf/d

➤ LNG Production

■ On-Shore Conversion : 1600 MMScf/d

➤ Petrochemicals

➤ Heavy Industries

➤ Power/LIC



T&T Gas Market in Context

Export Gas : 60% Production

On-Shore Conversion : 40% Production

■ 80% is exported after first tier conversion

➤ Petrochemicals (methanol/ammonia)

➤ Metals (steel/DRI)

■ 20% is domestically consumed

➤ Power generation

➤ Range of misc. small manufacturing/conversion activities
(LIC sector)

■ 'De Facto' Export Gas : 92% Production



So... What is the Point?

- Effectively 92% of Gas Production is exported
 - Is there - and should there be - a tension between Export Gas and On-Shore conversion?
- Which sector has generated/will generate better long term returns
 - For the country
 - For the producer
- Projected into the future - how is this trend likely to impact resource allocation and sustainable development



Selected Energy Indicators

	2004	2005	2006	2007r	2008e
Energy as % of GDP	38.7	39.4	42.2	40.9	39.4
Energy revenue as % of total revenue	42.9	53.3	60.3	56.0	57.7
Energy exports as % of total exports	80.3	88.9	91.0	89.4	86.4
Energy employment ('000's)	18.57	19.26	19.70	22.04	21.40
Energy employment as % of total employment	3.6	3.4	3.5	4.0	3.5

- energy sector not a major direct contributor to long term employment due to capital intensive nature
- share of overall employment arising from Energy sector fluctuated from 3.4% to 4% over the period
- activity in energy sector creates indirect employment in other sectors such as transportation, storage & communications
- employment multiplier for LNG projects similar to T&T ranges between 2 to 3,



Industry Considerations

- Some producers have already indicated that further resource development would require an expanded LNG market
 - Upstream and infrastructure development costs require a production level only feasible via LNG
 - On-going perception that Henry Hub related pricing will provide a better netback.



GORTT Considerations

- GORTT has indicated that they place a premium on domestic value added
 - Further downstream
 - More processing (on-shore conversion)
- GORTT is promoting a range of projects in the metals sector that require a quantum increase in power generation
 - Brings the core issue back into even sharper focus
 - Lower gas price / higher employment & multiplier



GORTT Considerations

- If brought to fruition this would increase the % of gas used in domestic conversion
- But it would also change the dynamic somewhat – since much of the power /gas would go to export projects
- Gas to power is currently at subsidized rates
- Strategy assumes that benefits to be gained from subsidized power outweigh its realizable value in alternate form i.e. as gas



Export Gas vs On Shore Conversion Revisited

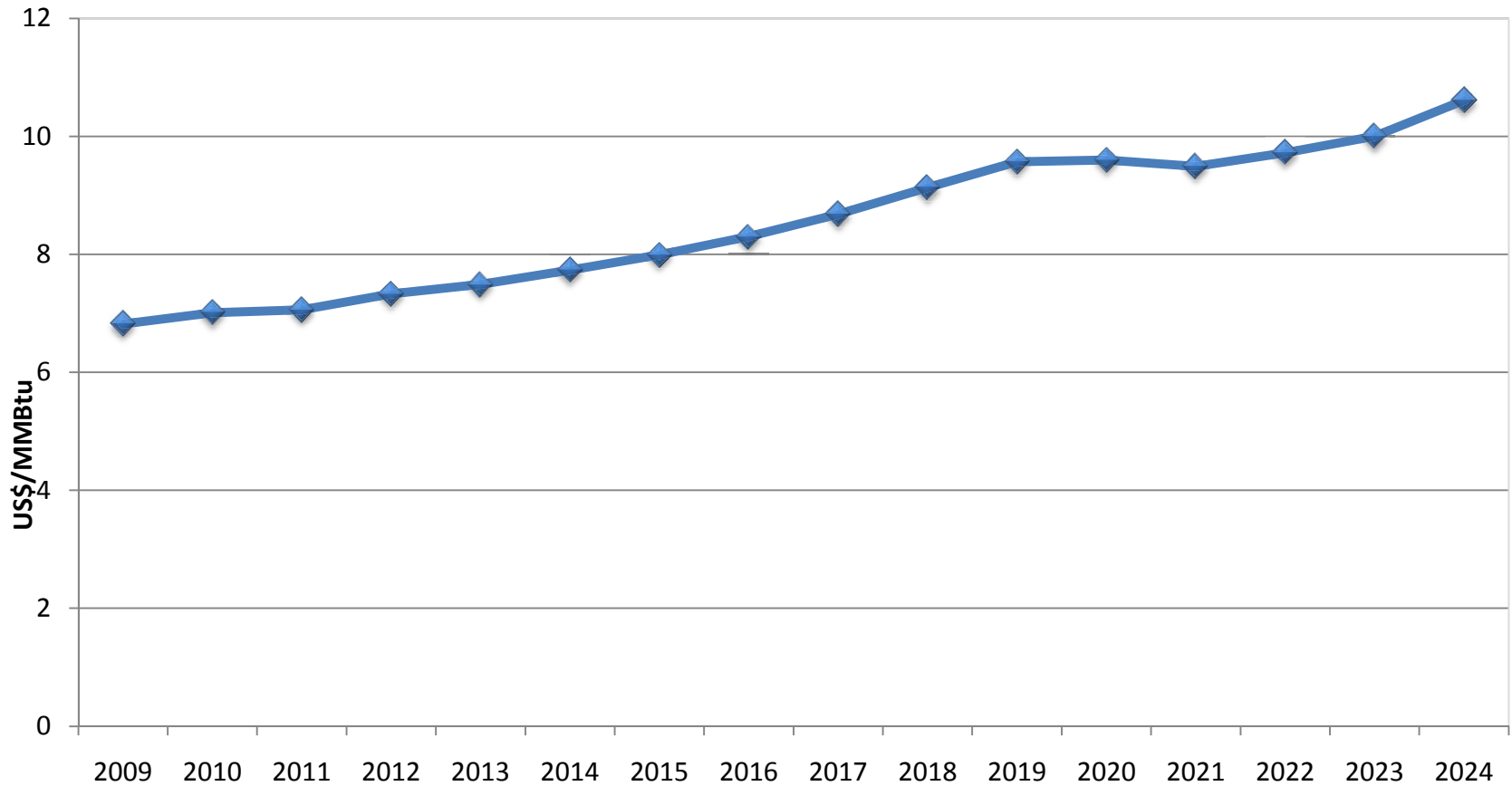
Export Gas: International developments and trends suggest that a major shift is underway

- Significant volumes from Mid-East and other locations (Qatar/Yemen etc) 2010 – 2012 period suggest tremendous downward pressure on Asian & European gas prices. Traditionally these have been premium and volatile markets.
- Emergence of large reserves of shale and other non-traditional gas sources in North America

Developments all point to reduced arbitrage and lower netbacks for Atlantic gas producers



Henry Hub Spot Price EIA Forecast 2009-2024



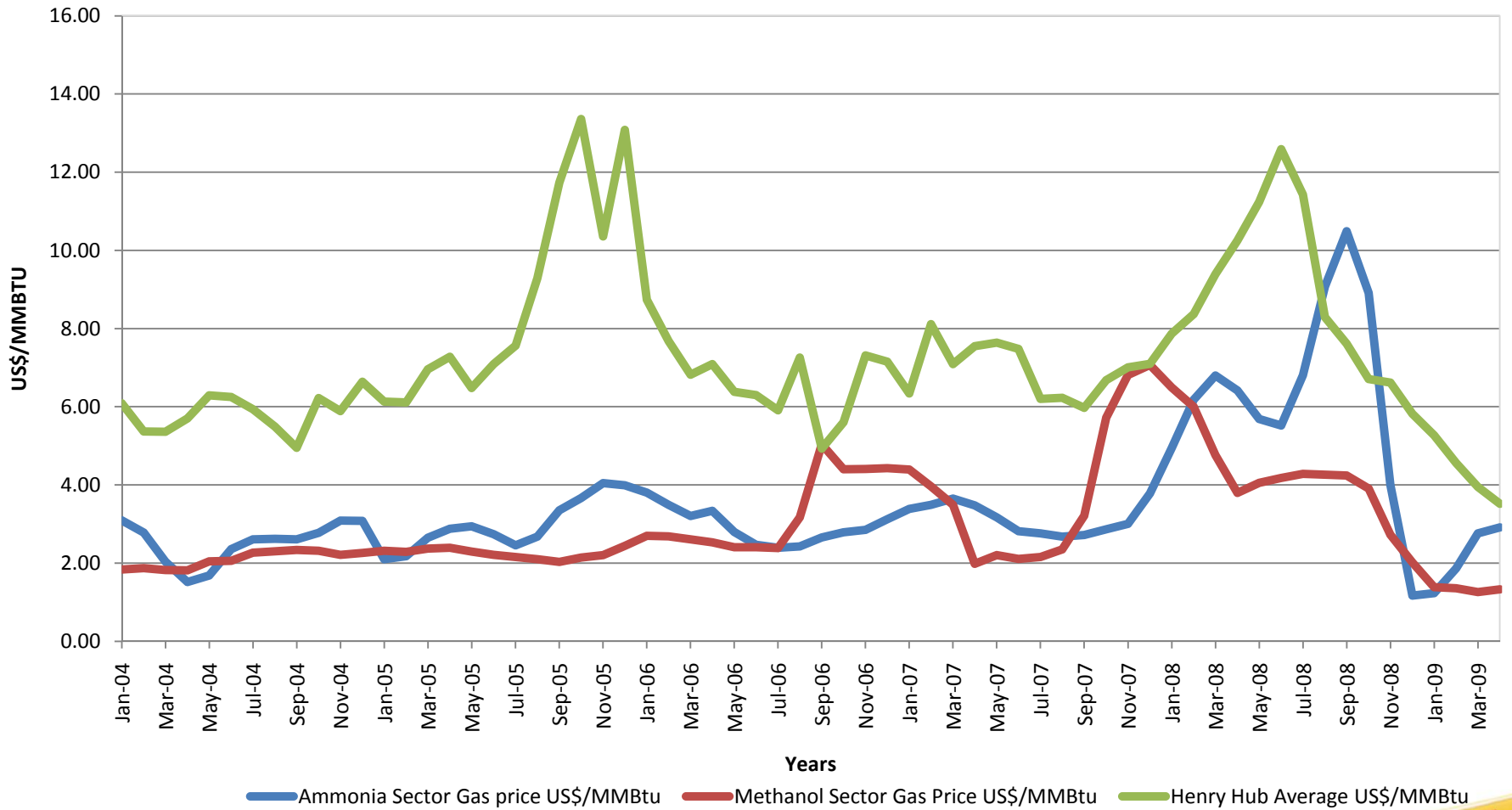
Export Gas vs On Shore Conversion Revisited

On-Shore Conversion

- As the OECD and ROW emerge from the severe 2009-2010 recession/depression, all reasonable projections are that:
 - Commodity prices will increase to at least their pre-recession levels
 - Methanol & steel prices typically move in tandem with economic activity in N. America & China
 - Ammonia is a basic fertilizer and industrial commodity, and responds accordingly



Commodity Price Trends



Export Gas vs On Shore Conversion Revisited

Sustainability

■ Export Gas

- Requires large reserves allocation that could impair long term industry growth
- Capital efficiency factor reduced
- Superior netbacks are no longer assured
- Remains an efficient mechanism to monetize large gas volumes



Export Gas vs On Shore Conversion Revisited

Sustainability

■ On-Shore Conversion

- Lower capital risk
- Reduced reserves impact
- Spread of market risk – Portfolio approach
- Competitive and comparable gas price netbacks
- Superior macro economic impact – employment, multiplier....



In Conclusion

- Either by plan or historical accident, T&T finds itself with a “natural gas product mix” that appears to:
 - Optimize returns
 - Minimize long term risk
 - Promote sustainability
- Participants in the sector- both capital providers and rent collectors – would be well advised to maintain the balance as matter of agreed policy



Thank You!

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