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# **Presentation to GMLG**

## **Gas Market Options Cost Benefit Analysis Draft Report**

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# Outline of the presentation

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- Introduction
- Overview of Costs Methodology
- Cost results BB
- Cost results STTM
- Overview of Benefits Methodology
- Benefits results BB
- Benefit results STTM
- Net Benefits
- Who bears the costs and who benefits?
- Macro economic impact
- Conclusions
- Questions and discussion

# Introduction

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## Process

- **Used BB and STTM descriptions provided**
- **3 Forums**
- **Wide consultation (meetings, telephone, written) over 50 from 30 organisations**
- **Independent draft report – assume all have read at least Executive Summary**
  - “Micro” costs and benefits
  - Uncertainties and ranges
  - Macro economic costs and benefits
  - Conclusions
- **Feedback**
- **Finalisation**

# Cost methodology 1

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- **BB and STTM as defined by GMOWG**
- **STTM includes BB**
- **Core STTM for SA and NSW. BB Australia-wide**
- **Incremental costs**
- **Disaggregation into categories**
- **Discussion and estimates from stakeholders**
  - Scope differences
  - Different understanding of categories
  - Different points of view
  - MMA judgement
- **Ranges - high and low scenarios**
- **“Economic costs” not transfers**
- **Net present value at 8.5% real discount**

# Cost Methodology 2 STTM

## STTM cost categorisation and estimation

Cost	Definition	Estimation Methodology
Planning	Time spent by industry and government to establish the BB and STTM and review after five years.	Estimated from number of working groups x meetings x cost/hour inc support and consultation plus project management and travel.  Five year operational review included.
Government	Additional Government cost to regulate including legal costs.	Government estimate.
Market Operation	Costs to set up and administer the new BB and STTM.	System set-up costs estimated from consultation as incremental to an existing operation. Assumed most of current market operations continue unchanged. Costs of trialling by time estimation.  On-going costs estimated from consultation.  Ongoing stand-alone governance from meeting assumptions.  Minus avoided costs plus incremental additional costs for existing operators.

Ref: Exec Table 4

# Cost Methodology 2 STTM

**Exec Table 1 – STTM cost categorisation and estimation**

Cost	Definition	Estimation Methodology
Large retailer	Setup costs (IT and communication) required to change the IT systems of large retailers plus ongoing operational costs required to trade in the new STTM markets.	Derived from industry consultation plus MMA estimates.  Systems - industry range plus reality check from FRC.  Some strategy costs.  Assumed additional 0.75 FTE per market (ie 1.5 for SA and NSW/ACT).  Estimated prudential costs.
Other small retailer, gas generators and end-users	Costs of system, strategy and BB for other users.	MMA estimate of strategy, IT/communication and additional operating time for each user type multiplied by est. number of such users.  Set-up cost of supplying information for facilities and other from BB.
Pipeline	Additional costs incurred specifically by pipelines (typically pressure) for the impact of changing requirements and contracts.	Industry consultation plus MMA estimates.  For pressure pipelines initial legal/contractual costs plus ongoing operational (0.5 FTE per pressure pipeline) and legal/contractual costs.
Other	Regulatory, network point to point.	Estimated after discussions with regulator and network.

Ref: Exec Table 4

# Costs of the BB

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## Summary

- NPV cost of \$2m plus or minus \$1m
- Set-up (medium scenario) \$1.5m
- Ongoing costs \$0.1 pa

# Cost methodology BB

Cost	Definition	Low	Medium	High
Planning	Cost for meetings, support and consultation related to BB design and implementation including project management	\$0.3	\$0.5	\$0.8
System and testing	System design, implementation and testing	\$0.2	\$0.4	\$0.8
Operation	Ongoing Costs of operating the BB	\$0.0	\$0.1	\$0.1
Government	Regulatory, rules and legal costs	\$0.1	\$0.1	\$0.2
Costs of facility operators	Incremental costs incurred by pipelines, producers, storage operators for BB data provision	\$0.1	\$0.1	\$0.2
Costs of other BB participants	Incremental costs incurred by retailers, generators and self-contracting end-users for BB data input	\$0.2	\$0.3	\$0.5
<b>Total</b>	<b>NPV and set-up and operating costs</b>	<b>\$0.9</b>	<b>\$1.8</b>	<b>\$3.0</b>

Ref: Exec Table 1

# Costs of the STTM (including BB)

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## Summary

- **\$17m NPV cost for the medium scenario**
- **Range of \$9m to \$28m**
- **Medium scenario:**
  - Set-up cost is \$9m
  - Annual operating cost \$1.6m pa
  - Review after five years of operation \$1m
- **Additional hubs**
  - Qld, WA \$4m each
  - Smaller – eg NT or Tasmania \$1.5m each

# Break-down of the STTM costs (NPV,\$m)

	Low \$m	Medium \$m	High \$m
Planning and project management	\$1	\$2	\$3
Government	\$0	\$1	\$1
System operation governance	\$2	\$5	\$8
Large retailers	\$3	\$5	\$9
Other users	\$1	\$3	\$4
Pipelines	\$1	\$1	\$2
Reg and other	\$0	\$0	\$0
<b>Total</b>	<b>\$9</b>	<b>\$17</b>	<b>\$28</b>

Ref: Exec Table 5

# Benefit methodology BB 1

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## Efficient pricing

- BB information will contribute to greater pricing accuracy
- Benefit of more accurate pricing reflecting true supply & demand curves
- Deadweight loss - inaccurate pricing results in a net loss of producer & consumer surplus.
- Based on change of 2.5c/GJ.
- \$170,000 p.a. NPV \$1.1m

Ref: Exec Table 2

# Benefit methodology BB 2

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## Gas network management during a supply shortfall

- Reduction in amount of curtailment - 10 TJ
- Value to industrial users - \$86/GJ
- \$3.4m for 4 days
- Once every 15 years = \$170,000 p.a.
- NPV \$1.5m

**Total BB benefit = \$2.6m**

Ref: Exec Table 2

# Benefit methodology STTM 1

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## Efficient pricing

- Same basis as for BB
- Based on deadweight loss Victorian market would have had if prices were static
- Medium scenario, \$250k rising to \$1m p.a. with more volatility
- NPV \$4m

# Benefits methodology STTM 2

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## Cost savings from trading gas

- Assumes STTM a net market like Victoria
- Compares market price to cost to participants of using their own gas
- Participant bids used as proxy for costs
- Value \$4m pa excl highest value day
- Medium scenario NPV \$15m

Ref: Exec Table 6, 7

# Benefit methodology STTM 3

**Curtailment management. Improved economic allocation of gas**

- **Based on estimated Moomba 2004 impact on SA industrial users**
- **Est. 60 TJ industrials curtailed, average value \$86/GJ**
- **Generation continued, netback \$2.50 - \$5.00/GJ**
- **Economic loss \$19m, 50% assumed saved by STTM**
- **Once every 15 years = \$600,000 p.a.**
- **NPV \$3m**

Ref: Exec Table 6, 7

# Benefit methodology STTM 4

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## Capacity utilisation efficiency

- Retailer portfolios less diverse than markets
- Sum of capacity requirements exceeds market
- Trading will eliminate some inefficiency
- Estimates based on daily end user info NSW & SA
- Inefficiencies NSW 6%, SA 10%
- STTM impact – reduce by 10%
- Save replacement and growth capex
- Unit capex assume 95% PL, 80% prodn costs are capacity related
- Medium scenario NPV \$26m

Ref: Exec Table 6, 7

# Benefit methodology STTM 5

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- **Not estimated, qualitative only:**
  - Improved risk management
  - Investment signals
  - Gas-fired generation

# Benefits of the BB

Benefit	Definition	Value
Pricing efficiency	Value of more accurate pricing, based on eliminating a pricing of 2.5c/GJ	\$1.1
Improved gas management during a supply shortfall	Value of lower level of curtailment due to improved information, based on a curtailment reduction of 16%	\$1.5
<b>Total</b>		<b>\$2.6</b>

Ref: Exec Table 2

# Benefits of the STTM excl BB, \$m NPV

	Benefit scenario		
Benefit	Low	Medium	High
Pricing efficiency	\$1	\$4	\$8
Value of trading	\$8	\$15	\$30
Curtailement management	\$2	\$3	\$6
Capacity utilisation efficiency	\$13	\$26	\$53
Risk management	+ve	+ve	+ve
Investment signals	+ve	+ve	+ve
Gas-fired generation	+ve	+ve	+ve
<b>Total</b>	<b>\$23</b>	<b>\$48</b>	<b>\$97</b>

Ref: Exec Table 7

# Macro benefits

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- Derived by Centre of Policy Studies (CoPS)
- From micro inputs derived by MMA
- Very similar to MMA micro net benefits
- No employment impacts

# Net Benefits of the BB

		NPV (\$m)	Benefit-cost ratio
	Low	\$1.6	2.8
Cost scenario	Medium	\$0.7	1.4
	High	-\$0.4	0.9

- Suggest a small net benefit but not particularly robust

Ref: Exec Table 3

# Net benefits of the STTM

		Benefit scenario		
		Low	Medium	High
Cost Scenario	Low	\$15	\$39	\$88
	Medium	\$6	\$31	\$79
	High	-\$5	\$20	\$68

- Net benefits range from -\$5m to +\$88m
- Best estimate is an NPV of \$31m
- Positive under most scenario combinations
- Net benefits are also expected for hubs in WA and Queensland.

Ref: Exec Table 10

# Benefit-cost ratio of the STTM

		Benefits		
		Low	Medium	High
	Low	2.7	5.6	11.2
Costs	Medium	1.3	2.8	5.6
	High	0.8	1.7	3.4

- There is a positive benefit-cost ratio in all scenario combinations apart from one
- More than half the combinations have robust ratios (>2)

Ref: Exec Table 11

# Allocation of costs and benefits

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- Indicative initial allocations are provided in the report.
- Costs are easier to allocate, benefits much harder.
- Based on our analysis, retailers and end-users should be better off by about \$8m NPV under this initial allocation but further benefits of \$27 M will be achieved from flow-through of capital savings.
- Pipelines and other facilities are expected to incur costs of the order of \$3m.
- Costs to Governments will be about \$1m.

# Conclusions

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- The BB is expected to cost about \$2m and benefits estimated are of the same order.
- The STTM is expected to cost about \$17m with estimated benefits about three times this amount.
- While there is significant uncertainty about both costs and benefits, there is a net benefit in all but one combination of scenarios.

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# Questions, discussion and finalisation