

National Gas Market Development Options

Cost Benefit Analysis

Industry Forum
10/11 April 2006

Today's Objectives

- Update on Gas Market Leaders Group
- Describe/explain market options
- Present context for the cost/benefit analysis
 - ◆ Objectives
 - ◆ Process
 - ◆ Timetable
- Seek stakeholder input

National Gas Market Options

- Allen Consulting Report to MCE, 2005
- 4 development options:
 1. “Organic development”
 2. Bulletin Board
 3. “City Gate” spot market model
 4. Extension of Victorian model nationally

Gas Market Leaders Group

- Established November 2005 to develop a wholesale gas market development plan
- Members from:
 - ◆ Gas producers
 - ◆ Pipeline owners
 - ◆ Retailers
 - ◆ Market operators
 - ◆ End users
- Report by June 2006

Gas Market Options Working Group

- Established December 2005 to further develop Options 2 & 3
- GMOWG initial report to GMLG in Feb'06
- Further work on:
 - ◆ Developing the 2 options
 - ◆ Overseeing a cost/benefit analysis
 - ◆ Establishing a market operator
 - ◆ Governance arrangements
 - ◆ Liaison with NGERAC

Cost/Benefit Analysis Objectives

- To assess costs and benefits of:
 - ◆ Bulletin Board
 - ◆ Short Term Trading Market
- “Order of Magnitude” assessment
 - ◆ Quantified to maximum possible extent
 - ◆ Market design to date is conceptual, but adequate to allow cost/benefits to be estimated
- Draft Report due 10 May 2006
- To assist GMLG in preparing recommendations on a National Gas Market Development Plan

Bulletin Board

Allen Consulting – Option 1

- “Current market with organic development”
- With FRC, “current market” involves
 - ◆ Bilateral contracting; and
 - ◆ Balancing arrangements in each jurisdiction
- Shippers/retailers/end-users balance through:
 - ◆ Victorian gas spot market
 - ◆ “Swing Service” in SA
 - ◆ “OBG” in NSW
- All currently being reviewed, or changes being implemented, to improve efficiency/effectiveness

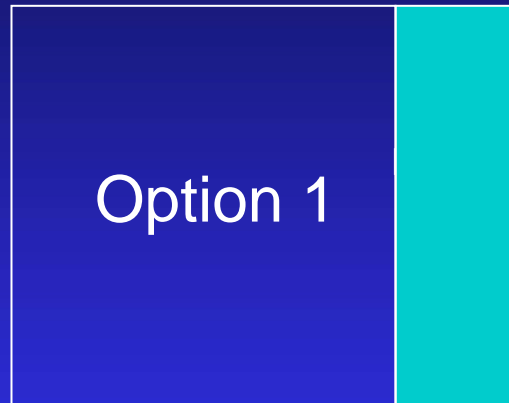
Option 1 “Organic Development”

- Victorian spot market
- “Swing service” in SA
- “OBG” in NSW
- Bilateral contracts

Current reviews and/or implementation of changes to improve existing arrangements:

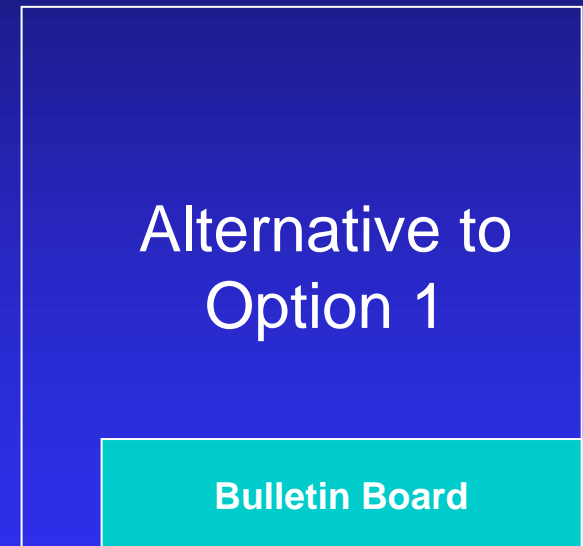
- Gas Market Project (Vic)
 - “Swing service” (SA)
 - OBG (NSW)

Option 2 “Bulletin Board”



Super-imposes Bulletin Board on current arrangements, which would still require development as per Option 1

Option 3 “Short-term Trading Market”



Alternative to required development under Option 1, likely to incorporate features of Bulletin Board as per Option 2

Bulletin Board - Objectives

- To improve transparency and facilitate trade through provision of readily accessible and up to date system and market information
- In particular, provides improved availability of this information to end-users, smaller or potential market entrants, market observers (including Governments)
- Does NOT establish a clearing price, trading mechanism, or otherwise provide increased price transparency

Bulletin Board - Overview

- Single Bulletin Board for all interconnected pipelines
- Non-interconnected pipelines preferably in same format, on same site, but separate “pages”
- Mandatory provision of specified physical gas supply/demand information
- Optional facility to post buy/sell offers for gas supply or capacity
- Public access
 - ◆ dependent on final details, could consider pages with restricted access to registered parties only, where confidentiality or security is an issue

Bulletin Board – Info Requirements

- “Nameplate” ratings of production, storage and pipeline capacities (TJ/day)
 - ◆ reviewed annually
 - ◆ updated in event of material changes, including planned/unplanned outages
- Available firm and non-firm pipeline capacity (per current Access requirements)
- Daily forecasts of aggregate daily demands for major load centres (outlook for next 2-3 days)
- Key contact details for pipeline operators, producers, storage providers, shippers/retailers
 - ◆ Can be achieved by hyper-link to web-sites

Bulletin Board – who would provide information?

- Producers, storage providers:
 - ◆ Production/storage capacities
 - ◆ Updated annually and upon material change
- Pipeline operators
 - ◆ Transportation capacities
- “Users” (retailers, direct end-use customers)
 - ◆ Daily demand forecasts
 - ◆ Aggregated for publication by BB operator

Facilities provided for direct entry, automated for uploading from existing systems, where possible

Bulletin Board – issues for further consideration

- Legal/governance framework for imposing obligations on parties to provide/update information
- Bulletin Board administrator
 - ◆ independent entity with gas system expertise
 - ◆ costs/funding?
- Interaction with NGERAC
 - ◆ Overlapping objectives, information requirements

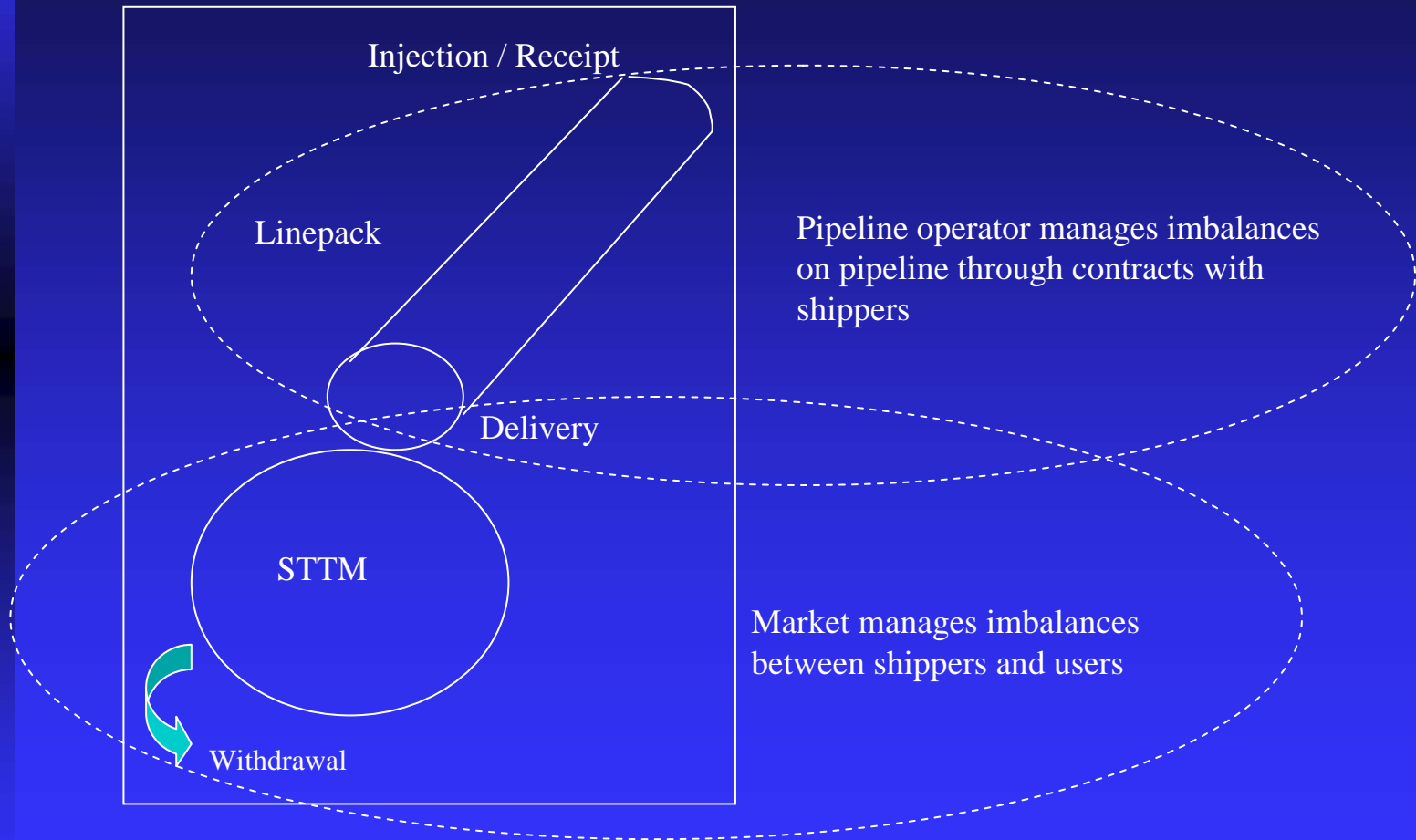
Short Term Trading Market

Short Term Trading Market(STTM)

Design Principles

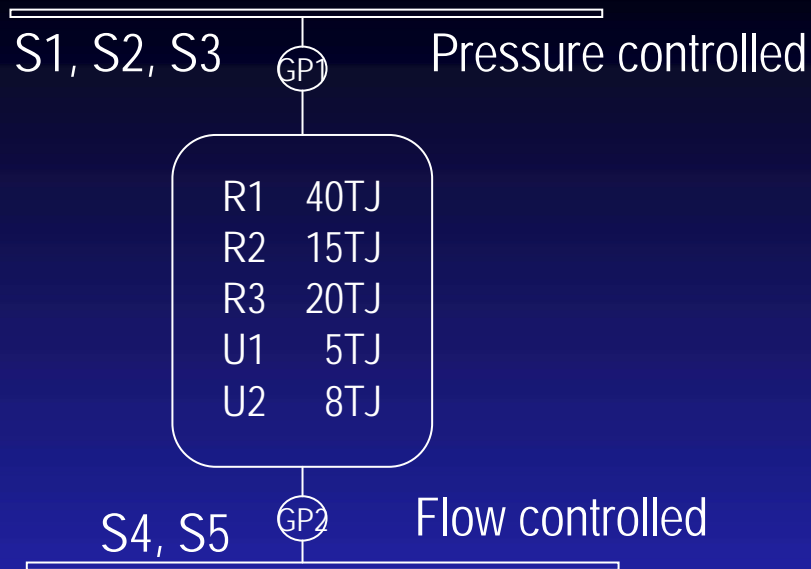
- Intended to be least cost method of clearing imbalances and valuing gas on a day
- Provides mechanism for:
 - ◆ daily trading between participants
 - ◆ demand-side response (eg users, generators)
 - ◆ transparent pricing signals between hubs
- Designed so as not to impact on pipeline or supply contracts
- *Does* involve change to FRC balancing arrangements
- Borrows US and UK concepts and adapts to Australian contract carriage point-to-point system as required

STTM – Terminology/Concept



STTM - Overview

- “Users” submit daily usage forecasts/bids
- Shippers submit offers for deliveries at hub
- Offers need to reflect contractual capability to deliver at hub
- Market Operator determines clearing price
- Clearing price applies to deliveries/usage at hub
- Nominations made by shippers to producers/pipeline operators under contracts (no change)
- Physical imbalances on pipelines (injections – deliveries) addressed through contractual arrangements (no change)



Shipper contracts

Buyer	Seller	Quantity	Price
R1	S1	20TJ	\$2.00
	S4	15TJ	\$1.90
R2	S2	15TJ	\$2.10
R3	S5	15TJ	\$2.05
	S3	5TJ	\$2.20
U1	-	-	-
U2	S1	5TJ	\$3.50

Ex-Ante STTM

		Cleared offers	Total cleared
S1	20TJ @ \$2.00/GJ	20TJ	23TJ
	10TJ @ \$3.50/GJ	3 TJ	
S2	25TJ @ \$2.10/GJ	25TJ	25TJ
S3	5TJ @ \$2.20/GJ	5TJ	10TJ
	5 TJ @ \$3.20/GJ	5TJ	
S4	15TJ @ \$1.90/GJ	15TJ	15TJ
	10TJ @ \$3.60/GJ	0	
S5	15TJ @ 2.05/GJ	15TJ	15TJ
	5TJ @ \$3.55/GJ	0	
Total			88 TJ

Ex-Ante STTM Settlement

	S1	S2	S3	S4	S5	R1	R2	R3	U1	U2	Total
Cleared delivery	23	25	10	15	15	0	0	0	0	0	88
Forecast withdrawal	0	0	0	0	0	40	15	20	5	8	88
Market Imbalance	+23	+25	+10	+15	+15	-40	-15	-20	-5	-8	0

Typical retailer being its own shipper:

Assume R2 and S2 are the same entity, i.e. R2 is a retailer that manages its own supply and transmission agreements.

Then this entity's exposure to the STTM clearing price is its net imbalance of cleared deliveries and withdrawals, i.e. $25 - 15 = 10\text{TJ}$ at $\$3.50/\text{GJ} = \$35,000$

More general example of User and Shippers as different entities:

R1 expects to use 40TJ, but has contracts with shipper S1 for 20TJ at $\$2.00/\text{GJ}$, and with S4 for 15TJ at $\$1.90/\text{GJ}$.

Using these bilateral contracts, R1, S1 and S4 can achieve an agreed fixed price for the 35TJ contracted, regardless of the STTM clearing price.

In this example, R1's exposure to the STTM clearing price would thus be limited to the un-contracted quantity 5TJ. (ie. $-5\text{TJ} @ \$3.50 = -\$17,500$).

Ex-Post STTM Settlement

	S1	S2	S3	S4	S5	R1	R2	R3	U1	U2	Total
Cleared delivery	23	25	10	15	15	0	0	0	0	0	88
Forecast withdrawal	0	0	0	0	0	40	15	20	5	8	88
Ex-ante market imbalance	+23	+25	+10	+15	+15	-40	-15	-20	-5	-8	0
Actual delivery	27	29	12	15	15	0	0	0	0	0	98
Actual withdrawal	0	0	0	0	0	45	10	25	5	13	98
Actual market imbalance	+27	+29	+12	+15	+15	-45	-10	-25	-5	-13	0
Variance c/f	+4	+4	+2	0	0	-5	+5	-5	0	-5	0

Variances c/f and cash settled at next day's clearing price

STTM – Implementation Issues

- Would replace existing “swing service” in SA and “OBG” arrangement in NSW
- Detailed design would need to further consider:
 - ◆ Definition of hubs (contractual/physical constraints?)
 - ◆ Market timetable (bids/market clearing/contract nominations etc)
 - ◆ Incentives and shipper risk management
- Governance/legal framework
- Market operator
- Application to non-interconnected, point-to-point pipelines? (eg WA/NT/Queensland)

STTM – Impacts on Operations

- Independent Market Operator required to manage systems for:
 - ◆ Receiving daily delivery/withdrawal bids/forecasts
 - ◆ Creating bid stack and setting clearing price
 - ◆ Management of metering data (profiling etc)
 - ◆ Settlements
 - ◆ Information provision
- Does NOT require independent pipeline operator
- Pipeline operations as per contracts
- Pipeline operator will need to advise market operator of delivery allocations

Interface with Victorian Market

- Proposed STTM relies on adequate linepack to manage within-day imbalances
 - ◆ not applicable in Victoria
- Changes currently being implemented to Victorian spot market to address within-day balancing issues on Victorian PTS
- Implementation of revised Victorian market arrangements should proceed as planned
- Proposed daily STTM balancing broadly consistent with proposed Victorian PTS model
- Interface should not be problematic

Market Options - Summary

■ Bulletin Board

- ◆ increased availability and transparency of system and market information
- ◆ does not provide pricing signals
- ◆ voluntary posting of buy/sell offers

■ Short term Trading Market

- ◆ Sets daily clearing price
- ◆ Provides short term trading mechanism
- ◆ Design intended to minimise impact on existing upstream contracts/operations
- ◆ Initial application to NSW/SA/ACT initially?
Extended to Qld, NT, Tas, WA if worthwhile
- ◆ More detailed design work required, but adequate for estimates of costs/benefits