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ICD Process

16 October 2009



Agenda

1. Approval of minutes
2. Statement of Proposal (Gas Industry Co / Energy Acumen)
3. Review of work on balancing agreement
4. Group discussion: balancing gas pricing study
5. Comments on MPOC changes (section 3 Balancing Agent functions & section 4 MDL IX)
6. Agenda items for next meeting



Statement of Proposal Transmission Pipeline Balancing (October 2009)

presented by:

Ian Wilson – Gas Industry Co

Michael Wright – Energy Acumen Ltd



Statement of Proposal (SoP) Overview

- **Gas Act section 43N(2) requires SoP to:**
 - Detail proposal - Section 7
 - Give reasons for proposal - Section 2, 4 & 6
 - Assess reasonably practicable options - Section 5
 - Provide other relevant information - Appendix D



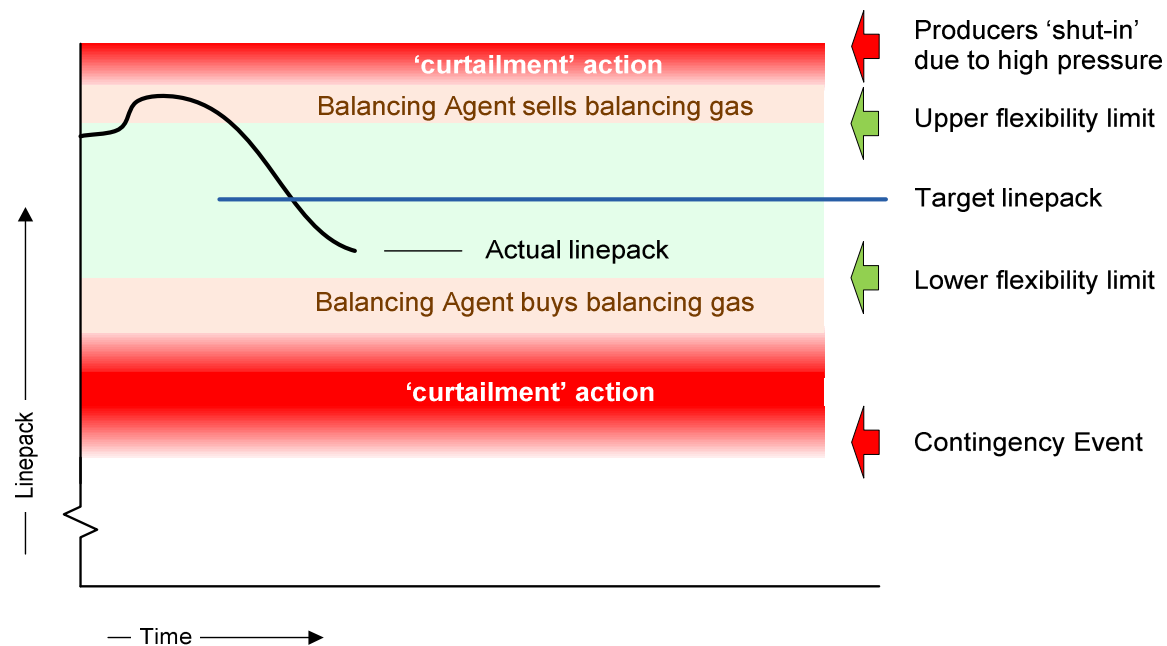
Reasons for Proposal

- Effective balancing is key element of successful open access (s 2.1)
- SoP references problem analysis in August 2008 Issues Paper
 - Such as, role of Balancing Agent unclear, poor transparency, poor allocation of balancing costs etc.
- Comments on changes since the Issues paper (s 2.3)
 - Improvements still do not achieve a unified balancing regime, balancing market not open to all, no consultation on standing operating procedures etc.
- Sets out Gas Act and GPS objectives relevant to balancing (s 4.1)
 - Such as safe, efficient and reliable delivery of gas
- Proposal addresses issues (s 6.2)
 - Provides single Balancing Agent, cost to causers, clear roles etc.



Reasonably Practicable Options

- Scope of proposal is limited (s 5.2)
 - Essentially dealing with management of linepack in pipelines, including: back-to-back allocations, but does not address: D+1, extended nominations, reviewing tolerances etc.





Reasonably Practicable Options

Contracts based option

- Allows industry to develop a contracts based solution before reassessing the need for regulation

Prescriptive regulation option A

- Require users to use reasonable endeavors to maintain balanced positions
- Describe the functions of the Balancing Agent

Prescriptive regulation option B

- Require the Balancing Agent manage linepack
- Require balancing gas title and costs to be allocated cost to causers

Participative regulation option

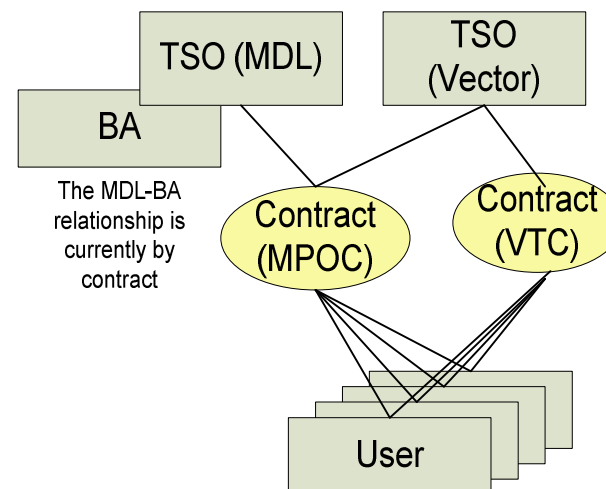
- Require the Balancing Agent to use an open balancing market



Contracts Based Option

An option involving a mixture of TSO initiatives, user input and Gas Industry Co influence, described in contractual arrangements.

- This solution would require minimal intervention and could be achieved largely by changes to the MPOC and VTC
- Industry negotiation would determine extent and content of the reform
- Gas Industry Co could provide facilitation, research and analysis as required

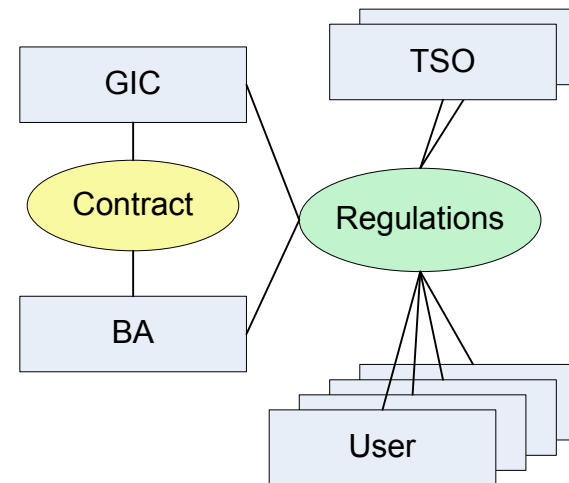




Prescriptive Regulation Option A

An option comprising a single balancing regime, with a single Balancing Agent reporting to Gas Industry Co, fully prescribed in regulation

- Gas Industry Co appoints Balancing Agent
- Detail of regime written into regulations
- Funded through market fees

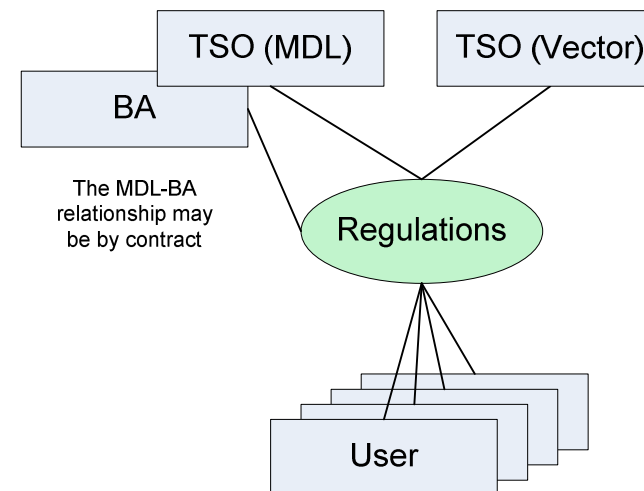




Prescriptive Regulation Option B

An option comprising of a single balancing regime, with the MDL Commercial Operator as the single Balancing Agent reporting to MDL, fully prescribed in regulations

- MDL Commercial Operator is appointed Balancing Agent
- Detail of regime written into regulations
- Funded through TSO tariffs

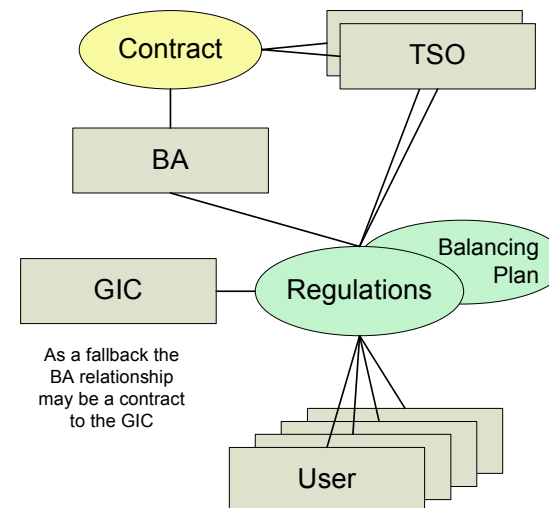




Participative Regulation Option

An option which permits TSOs to develop a single balancing policy that meets criteria specified in regulations

- TSOs appoint a Balancing Agent
- Requirements of regime written into regulations
- Details of regime set out in a balancing plan
- Funded through TSO tariffs





Assessment of the options

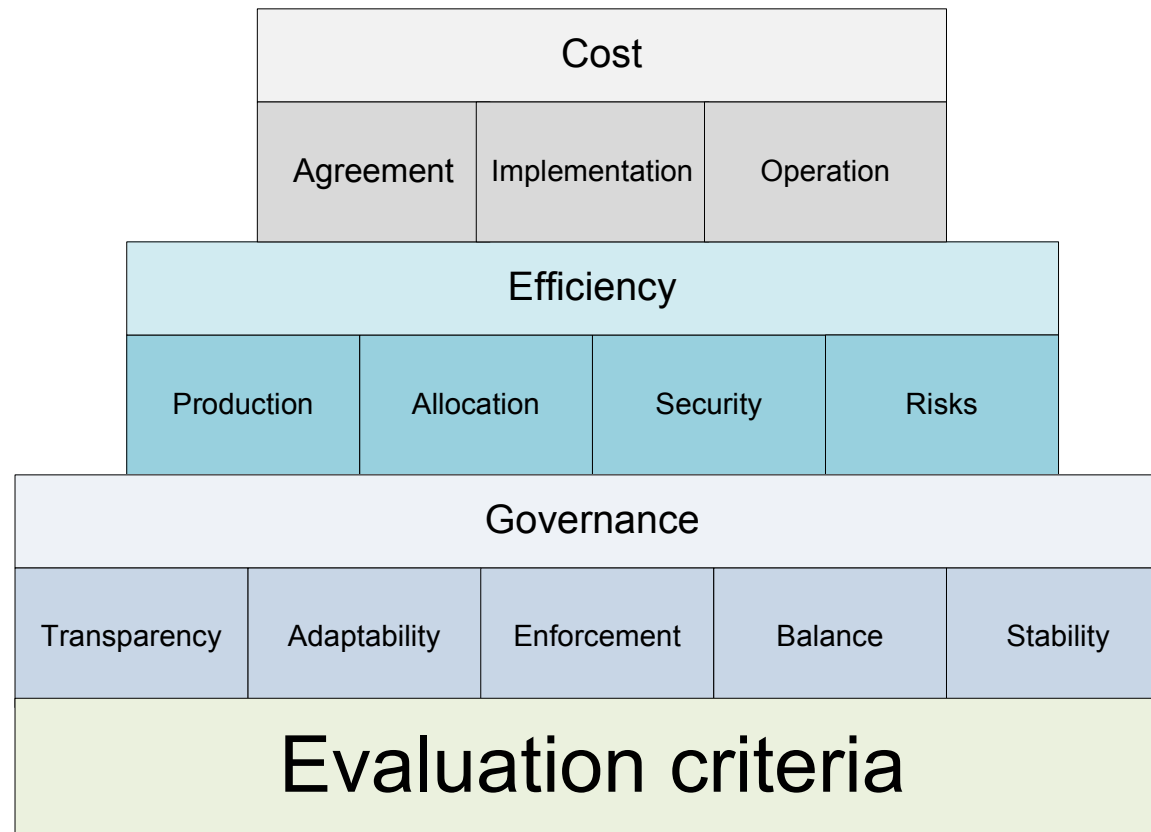
- Qualitative v quantitative analysis

“While it is tempting to think that dollar numbers will provide a more precise evaluation, putting a dollar value on such criteria as transparency or balance would be subjective (ie qualitative). Quantitative data is based substantially on qualitative judgments. Also, qualitative data can be expressed numerically (as we did in our evaluation), but this does not make it more valid. So the distinction between the approaches is not substantive and both are interdependent.”

(Transmission Pipeline Balancing Second Options Paper- Analysis of Submissions)



Assessment of the options (cont.)



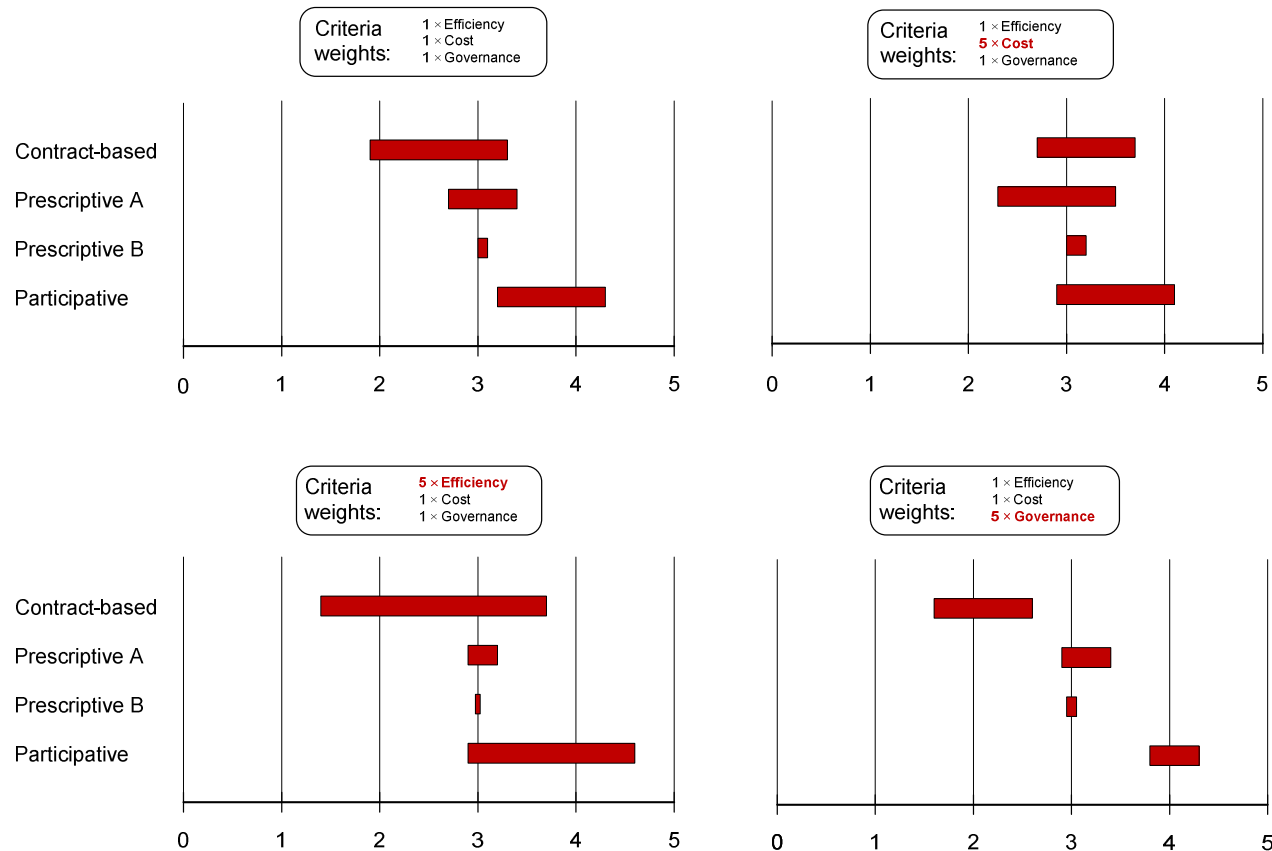


Assessment of the options (cont.)

	Contracts based option		Prescriptive regulation option A		Prescriptive regulation option B		Participative regulation option	
	From	To	From	To	From	To	From	To
Totals Efficiency	1.0	4.0	3.0	3.0	3.0	3.0	2.8	4.8
Totals Cost	3.3	4.0	2.0	3.7	3.0	3.3	2.7	4.0
Totals Governance	1.4	2.0	3.0	3.4	3.0	3.0	4.2	4.2
Overall	1.9	3.3	2.7	3.4	3.0	3.1	3.2	4.3



Assessment of the options (cont.)





Proposal

- Subject to its consideration of the output from the ICD process and submissions on the SoP, Gas Industry Co will recommend to the Minister that:
 - Balancing Rules be implemented, substantially in the form of the draft Rules in Appendix B of the SoP
 - Amendments be made to the Critical Contingency regulations and Compliance regulations, substantially in the form of the amendments set out in Appendix C of the SoP



Draft Gas Governance (Balancing) Rules

Summary of proposed rules from

Statement of Proposal Transmission Pipeline Balancing (October 2009)



Scope of proposed rules

- **Purpose of the rules**
 - '...to achieve an efficient, unified balancing arrangement for managing imbalance in the transmission system'
- **The rules provide for**
 - appointment of a single Balancing Agent (BA)
 - development of a single balancing plan
 - minimum requirements for balancing
 - governance and funding

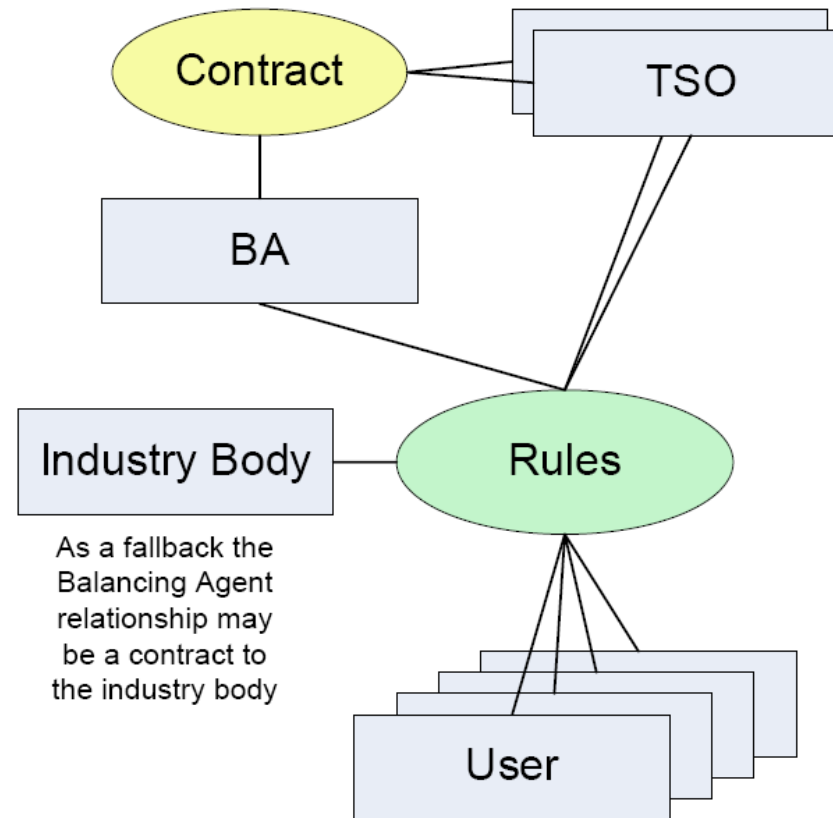


Design principles

- Primary obligation is on users to balance
 - however residual imbalance is managed
- Unified regime that is clear and transparent
 - TSOs attempt to agree a plan and appoint a single BA
 - deadlock breaking mechanism to give certainty
- Flexibility to adapt
 - rules cover policy / principles with details in an amendable plan
- Balancing costs only incurred if physically needed
 - balancing action taken on linepack thresholds
- Balancing costs allocated to causers
 - back-to-back (no notice) allocation of actual balancing gas and cost
- Correct price signals for investment and price risk manageable
 - marginally cleared and clearing price equals cash-out price
 - productive and allocative efficiency



Proposed relationships





Terminology

- **User means**

- A shipper, interconnected party, trader or TSO
 - TSO is a user with respect to managing target linepack

- **Balancing action means**

- A set of balancing gas transactions committed at the same time
 - may have multiple balancing transactions in a balancing action
 - may have multiple balancing actions in a day
 - under current processes each ID cycle commitment would be a single balancing action and have its own clearing price and be cashed out separately



Terminology (cont.)

- **Balance means**

- Shippers to match their allocation of receipts and deliveries
 - i.e. no mismatch
- Interconnected parties to match flow to scheduled quantity
 - i.e. no ROI (Running Operational Imbalance)
- Traders to match their purchases and sales
- TSOs to manage target linepack
 - means linepack must match target linepack after adjustment for other users allocations of imbalance
 - i.e. must manage own gas use, UFG and target linepack changes



Balancing obligation

- **Obligation to balance**

- Applies at all times on a users accumulated imbalance position
- The allocation process uses the best information available
 - which may be daily data and end of day imbalance
- Rules acknowledge that imbalance will occur
 - consequences are limited to cash-out

- **Balancing zones**

- Transmission system is divided into balancing zones
 - users must balance within each zone
 - could be one or many



Key functions of the TSOs

- Jointly attempt to agree a draft balancing plan and BA
- Consult on the draft plan with persons likely to be impacted
- Obtain industry body approval of proposed plan
- Act consistently with the rules and cooperate with the BA
 - not to unreasonably interfere with transmission services
- Provide BA with necessary information
- Provide BA with balancing gas transmission services
- Publish its compressor operation policy
- Adjust user's allocations for any cash-out determined by the BA



Key functions of the industry body

- Review balancing plan against the purpose and rules
- Suggest amendments if needed
- Approve balancing plan if meets purpose and rules
- Develop balancing plan and appoint BA if TSOs in deadlock
- Audit BA performance against rules
- Review and approve proposed amendments to balancing plan



Key functions of the BA

- Manage linepack by buying or selling balancing gas
- Allocate balancing gas and its cost (i.e. determine cash-outs)
 - Provide information on balancing gas allocations to the TSOs
 - Invoice / credit users for balancing gas costs
 - Trade any unallocated balancing gas
 - Act independently and at arms length
 - Enter required balancing gas transmission service agreements

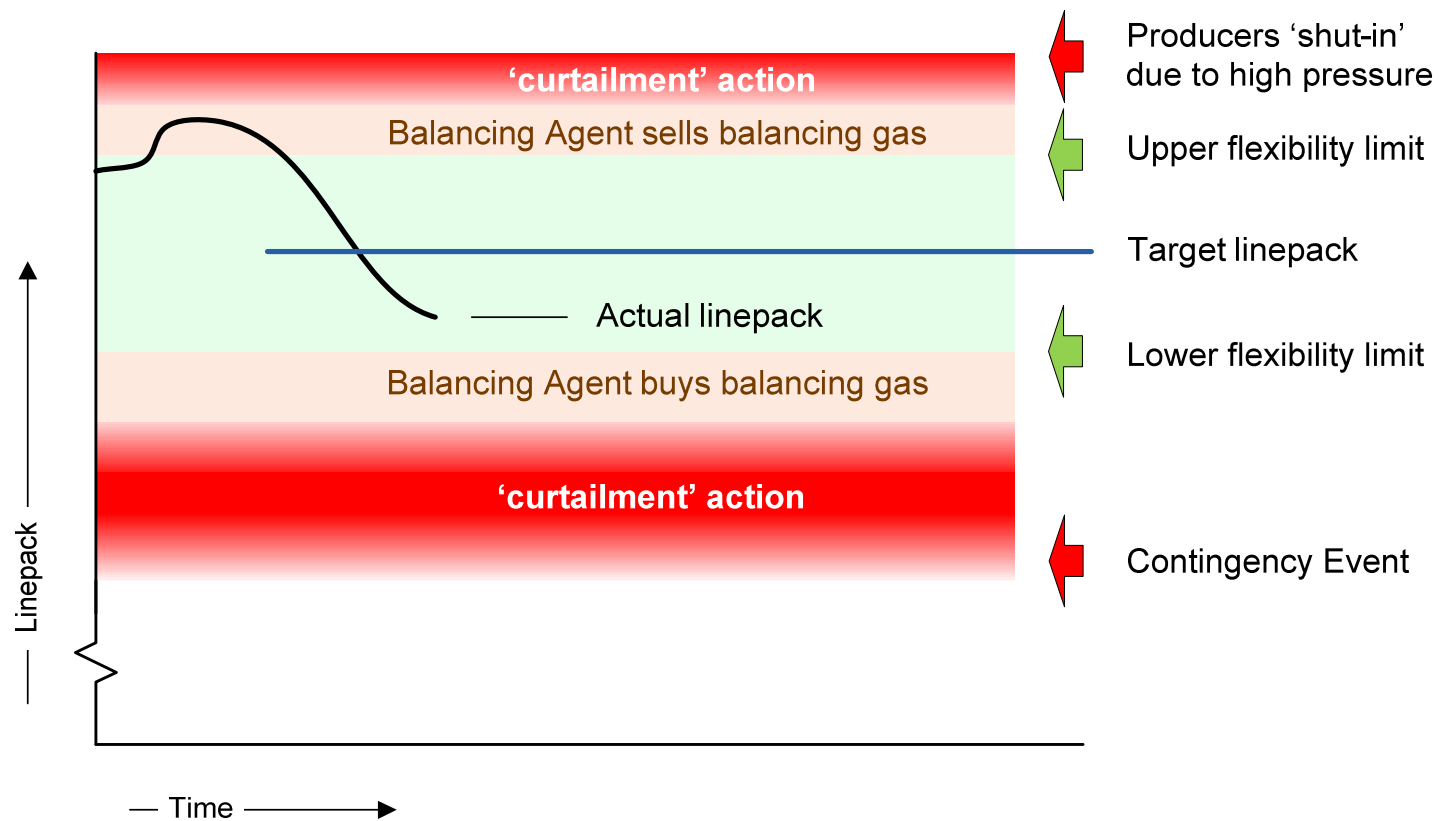


Linepack management

- Balancing zones are either directly or indirectly managed
- For directly managed balancing zones
 - BA buys or sells balancing gas
 - balancing action taken when linepack will go outside thresholds
 - see next slide
- For indirectly managed balancing zones
 - balanced via directly managed zones (e.g. Huntly township via pressure regulator from Maui pipeline)
- Balancing zones and thresholds defined in balancing plan
 - thresholds must give maximum flexibility without unreasonably interfering with transmission services
- BA to warn TSO if insufficient balancing gas available



Linepack management





An example is available
at the end

Balancing market

- BA buys and sells gas through a balancing market
 - open to anyone who meets reasonable technical/commercial terms
 - accepts offers and changes as late as practical
 - accepts the lowest call or highest put prices
 - the same clearing price for all transactions within a balancing action
 - prices are adjusted for transmission costs (if any) *
- Prices are capped and published in the balancing plan
 - maximum call price a pre-estimate of the critical contingency price
 - minimum put price a pre-estimate of the marginal cost of non-production
- BA must use the balancing market unless the industry body agrees the market has failed

* may be one reference location or different ones used
for different balancing actions

Allocation of balancing costs

An example is available
at the end



- Balancing plan specifies the allocation model
- Allocation model allocates balancing gas to users in proportion to the contribution of their imbalance to the balancing action
- Allocation model allocates to users in adjacent balancing zones according to their contribution to the zone being balanced
- BA must allocate:
 - in accordance with the balancing plan
 - as soon as practical after taking the balancing action
 - using the best available information
 - cash-out at the clearing price adjusted for transmission costs (if any)
 - cash-out price is not to include any profit or overheads
 - cash-out each balancing action separately



Allocation of balancing costs (cont.)

- Any unallocated gas under the model allocated to the BA
 - BA to buy or sell any unallocated gas on the NZ gas exchange with a view to minimising any loss or maximising any gain
 - note that unallocated gas should be minimised with back-to-back cash-out and appropriate (or zero) tolerances
- Rules are silent on tolerances
 - may or may not be included in the allocation model *
 - linepack flexibility is provided to BA via the linepack thresholds
- Any errors discovered within 6 months are adjusted with a new allocation rather than re-opening historic allocations

* a lack of allocation tolerances may be efficient, with appropriate balancing action thresholds and using back-to-back cash-out



Contents of the balancing plan

- Must be consistent with the rules and purpose, and provide:
 - identity of the BA
 - balancing zones (including which are directly managed)
 - linepack thresholds (may vary with time or be a formula)
 - target linepack for each balancing zone (must be midpoint where there are thresholds)
 - method of balancing indirectly managed balancing zones
 - process to notify and coordinate operations
 - technical requirements for procurement of balancing gas
 - times for decisions on procurement of balancing gas
 - price thresholds (caps)
 - allocation model



Development of the balancing plan

- TSOs attempt to agree the balancing plan and the BA
- TSOs consult on the draft plan (20 business days)
- TSOs may amend the draft plan
 - if minor changes then submit to industry body for approval
 - if material changes then repeat consultation
- Industry body approves plan if it meets the rules and purpose
 - if declined then TSO considers the reasons and may resubmit (and consult again for 10 business days if there is a material change)
- Industry body publishes the approved plan
 - go-live is the start of the month after approval (or following month if after the 25th)
- Industry body may produce plan and appoint BA if TSOs are dead-locked



Amendment of the balancing plan

- TSOs (in agreement) or industry body may propose amendments
- Amendments are approved as per the initial plan process (previous slide)
 - urgent or minor changes can be implemented without consultation and may be consulted on after coming into effect
- Changes take effect the beginning of the next month
 - or the following month after if approved after the 25th



Transparency

- BA to maintain records
- BA to publish:
 - balancing action quantities
 - clearing prices
 - any balancing gas allocated to the BA and trading of this
 - monthly reports
 - tariff of any balancing gas transmission services agreement
- BA to report to industry body any known breaches
- Industry body can undertake an independent audit
 - audit report to be published
(excluding any information the auditor considers confidential)



Funding

- TSOs to pay BA
- TSOs to pay any industry body costs in relation to the rules
 - cost of reviewing and approving balancing plan
 - costs of producing the balancing plan and appointing the BA if the industry body is forced to do this under the dead-lock breaking mechanism
 - similar funding model to other market arrangements
- TSOs to pay in proportion to their total pipeline gas flows received or delivered, other than to or from another TSO
 - i.e. pay on throughput into or out of the total transmission system



Miscellaneous

- Obligations are subject to safety needs
- TSO codes are subject to the Rules
- Balancing actions are suspended during a critical contingency
- Disputes are handled under the Gas Governance (Compliance) Regulations 2008
 - consequential amendments to these regulations needed



What's next

Submission on SoP close	30 October 2009
Issue Submissions Analysis on SoP and Recommendation to Minister	21 December 2009



Any questions?



Balancing example – scenario (slide 1)

- Same balancing zones as current
- Low Maui linepack with -2000 GJ imbalance
- Balancing reference location within Maui pipeline
- BA to buy 1000 GJ, has 3 offers to provide balancing gas
 - offer A, at Vector north pipeline, 600 GJ at \$10 /GJ, BA transmission costs to reference location are \$0.2/GJ
 - offer B, at Maui reference location, 800 GJ at \$8 /GJ, no BA transmission costs
 - offer C, at Vector south pipeline, 700 GJ at \$6 /GJ, BA transmission costs to reference location are \$0.3 /GJ
- Note that this is one balancing action. Any others in the day would be cleared and allocated separately.



Balancing example – clearing (slide 2)

- Merit order of offers into the Maui pipeline
 - offer A 600 GJ @ $\$10 + 0.2 = \10.20 / GJ
 - offer B 800 GJ @ $\$8 + 0 = \8.00 /GJ
 - offer C 700 GJ @ $\$6 + 0.3 = \6.30 / GJ
- BA accepts 1000 GJ of the lowest priced offers i.e. B & C
- Clearing price is highest priced offer accepted i.e. $\$8$ /GJ
 - 700 from C, paying C $\$8 - 0.3 = \7.70 /GJ
 - 300 from B, paying B $\$8 - 0 = \8.00 /GJ
- BA pays TSO $\$0.3$ /GJ for 700 GJ
- BA pays a total $\$8$ /GJ for 1000 GJ purchased



Balancing example – allocation (slide 3)

- Assume imbalance at time of accepting offers is
 - Maui total imbalance = - 2000 GJ
 - User X - 1000 GJ ROI at Pohokura
 - Adjacent balancing zone - 1000 GJ ROI at Rotowaro
 - User Y - 600 GJ running mismatch in northern pipeline
 - User Z - 400 GJ running mismatch in northern pipeline
- BA allocates 1000 GJ (the amount purchased)
 - User X 500 GJ at \$8 / GJ
 - Vector north balancing zone allocated 500 GJ
 - User Y 300 GJ at $\$8 + 0.2 = \$8.20 / \text{GJ}$
 - User Z 200 GJ at $\$8 + 0.2 = \$8.20 / \text{GJ}$
- BA pays TSO transmission charge of \$0.2 /GJ for 500 GJ
- BA receives a net of \$8 / GJ for 1000 GJ total allocated



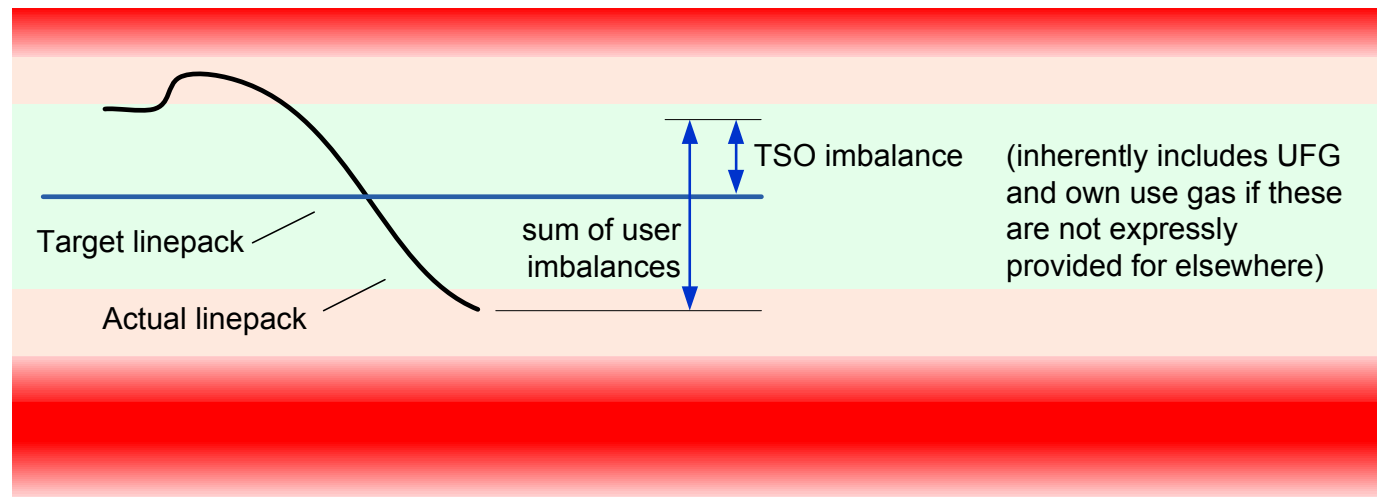
Balancing example – conclusion (slide 4)

- Result of process:
 - Participants can offer at short run marginal cost (even zero) and receive the going market price
 - Surplus market capacity (after endeavouring to self balance) is pooled and efficiently dispatched (i.e. static efficiency)
 - Supply and demand see the market price of their actions (correct price signals for investment, i.e. dynamic efficiency)
 - A user that is uncertain of their imbalance position can offer into the market and receive the same price for their offer and the cash-out, hedging their price risk (i.e. price risk is manageable)
 - Users can offer from remote locations (or use their own TSA to offer at the balancing reference location)
- There may be more than one balancing action on a day, each of which would be cleared and cashed out separately



Additional slide for TSO imbalance

- A TSO can be a causer of imbalance
 - TSOs will have imbalance positions and may be cashed out like other users
 - A TSO's imbalance in a balancing zone is the amount actual linepack plus imbalances differs from the target linepack
 - e.g. from unresolved compressor use, UFG etc





Additional slide for TSO imbalance

- Definition of TSO imbalance
 - responsibility for any variation of linepack from the planned linepack ('target linepack') must be allocated to a party
 - actual linepack – target linepack = Σ all allocated imbalances
 - this includes imbalance with an adjacent balancing zone (note what is negative to a balancing zone is positive to the interconnected one)
 - the TSO is allocated any imbalance they have not allocated to another user or an adjacent balancing zone
 - TSO imbalance = actual linepack – target linepack - Σ other imbalances
 - TSO imbalance may be from metering error or unallocated flows (e.g. unmetered consumption)
 - TSO can avoid allocation of imbalance by adjusting linepack for UFG and the TSOs own gas use