Transmission Balancing Second Options Paper

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GAS INDUSTRY COMPANY LIMITED

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About Gas Industry Co.

Gas Industry Co was formed to be the co-regulator under the Gas Act.

Its role is to:

- recommend arrangements, including rules and regulations where appropriate, which improve:
  - the operation of gas markets;
  - access to infrastructure; and
  - consumer outcomes;
- administer, oversee compliance with, and review such arrangements; and
- report regularly to the Minister of Energy and Resources on the performance and present state of the New Zealand gas industry, and the achievement of Government's policy objectives for the gas sector.

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Executive summary

Gas Industry Co has taken the lead on assisting the New Zealand gas industry to resolve the problems it has been experiencing with balancing gas across the country's two transmission pipelines. Due to the complex nature of the current arrangements, including both the physical characteristics of the transmission systems and the commercial terms on which participants interact, this task has proven difficult.

In light of submissions received on previous papers on balancing and discussions with industry participants, Gas Industry Co has identified the need to present an additional set of options. This paper presents four reasonably practicable options which could improve the balancing market. After careful evaluation, one of the options has been identified by Gas Industry Co as its preferred option.

We welcome feedback from stakeholders and ask that submissions are received by Monday 17 August 2009. This will allow us time to consider your views and to incorporate feedback in a Statement of Proposal on balancing arrangements to be sent to the Minister by the end of the year.

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1 Introduction

1.1 Background

Pipeline balancing is the management of the inventory of gas in a pipeline, known as linepack. Linepack must be managed to keep the gas pressure in the pipeline within safe limits; that is, below the safe physical operating limit for the pipeline; and above the minimum required to maintain actual supply of gas to consumers.

Without effective balancing, reliable transportation of gas is impossible. Effective balancing of transmission pipelines is therefore a key element of successful open access.

Concerns about the current New Zealand balancing arrangements became a key feature of the Gas Industry Company Limited (Gas Industry Co) June 2006 Transmission Access Review. Various issues were of concern, including, for example: poor information on balancing status; slow processes for notifying and correcting imbalances; non-market pricing of balancing gas; poor targeting of balancing costs to causers;[1] and high transaction costs.

1.2 The consultation process to date

Since concerns were first raised, and as required by the Gas Act,[2] Gas Industry Co has followed an extensive review and consultation process. To date, that process has included holding workshops and meetings with stakeholders, establishing the Transmission Pipeline Balancing Advisory Group (TPBAG), and publishing various expert reports and consultation documents.[3]

Appendix E is a timeline of previous work on transmission pipeline balancing and market developments that have occurred since this work began. It has been included as background for readers who are new to the topic of balancing, or those who wish to refresh their memory. It provides a context for how the options presented in this paper have been developed.

[1] In this paper 'causers' refers to system users who have imbalance positions in excess of tolerance and in the same direction as a pipeline imbalance corrected by selling or buying balancing gas.
[2] Section 43L of the Gas Act sets out the steps Gas Industry Co must take prior before making a recommendation for gas governance rules or regulations including recognising all reasonably practicable options (under section 43N) and consulting with persons likely to be substantially affected by the proposed regulations.
[3] All related documents can be found on Gas Industry Co's website.

Issues Paper

In the Transmission Pipeline Balancing Issues paper (Issues Paper) of August 2008, Gas Industry Co identified issues with the then current balancing arrangements. Twelve main issues were identified through the TPBAG assessment and a further nine from Gas Industry Co's review of balancing arrangements against the European Regulators Group for Electricity and Gas (ERGEG) principles.[4] Considerable overlap existed between the two lists and Gas Industry Co consolidated the issues into one comprising nine main balancing issues. See Table 1 below.

Table 1 Balancing issues identified in the Issues Paper

Balancing issues	Explanation
Poor Governance	Existing balancing provisions are unclear or hard to enforce; it is hard to gain agreement on changes needed.
Role of balancing agent unclear.	Security of supply obligations on the Balancing Agent are unclear.
Poor information on balancing status	Users—especially mass market retailers—have poor information on current imbalances.
Multi-day balancing and pricing period	Whilst nominally one day, the balancing period extends over several days, due to Imbalance Limit Overrun Notice (ILON) provisions and pricing lags.
Poor transparency	It is unclear to users how balancing costs are incurred and how prices to users are set.
Poor allocation of positive imbalance costs	Charges to users for positive imbalances are much less than the costs that these imbalances create.
Competing balancing agent	There is potential for the two balancing agents to be in conflict and add to the costs and complexity.
High transaction costs	The complexity of balancing arrangements may give rise to unnecessarily high transaction costs.
Inappropriate tolerances	Tolerances may be too high in aggregate (compared with linepack limits) and not allocated to those who value them most.

Source: Transmission Pipeline Balancing Issues Paper, August 2008

Options Paper

By the end of 2008, the review and consultation process had led Gas Industry Co to conclude that industry agreement alone is unlikely to achieve the Gas Act objectives in relation to pipeline balancing. A proposal for how we might take the lead in improving and formalising arrangements was set out in the Transmission Pipeline Balancing Options Paper (Options Paper), released in December 2008. The proposal was a 'hybrid' solution, a key feature of which was the establishment of a single,

[4]See 'Guidelines of Good Practice for Gas Balancing (GGPGB) E06-GFG-17-04', ERGEG, 6 December 2006.

independent, Balancing Agent (refer to section 4.1 starting on page 27 of this paper for a summary of that proposal).

Gas Industry Co invited submissions on the Options Paper and considered each of the eight submissions received in an analysis of submissions, which was released in May 2009. [5]

1.3 Changes since the Options Paper

In its submission on the Options Paper, Maui Development Limited (MDL) noted that 'Maui pipeline balancing arrangements have evolved since the Options Paper…' [therefore] '…parts of the information and reasoning upon which the paper's propositions have been derived should be reviewed'.

Gas Industry Co recognises that changes in balancing arrangements have taken place since the Options Paper was released. However, the extent to which these changes have improved balancing arrangements remains unclear. One submitter thought it important to give the recent changes time to 'bed-in' before analysing their affects. Other submitters felt the changes do not go the 'full distance' in dealing with all the problems identified in the Issues Paper. Gas Industry Co considers it important to identify the changes and how they have begun to improve balancing issues identified in the Issues Paper.

Removal of Maui legacy provisions from the MPOC

Before their removal from the Maui Pipeline Operating Code (MPOC), the provisions for Maui legacy gas had a substantial impact on the balancing regime.[6] Under these provisions, the MPOC allowed Shippers of Maui legacy gas to adjust their nominations retrospectively (up to certain limits) at the month's end. Additionally, Maui legacy gas was exempt from the MDL Incentives Pool and an Imbalance Limit Overrun Notice (ILON) could not be issued during the month for any Welded Point where legacy gas had been delivered. Calculation of imbalance and peaking, and the associated incentive pool debits, was performed after the re-nominations had been made.

On 20 June 2008, MDL submitted a change request to Gas Industry Co requesting that the parts of the MPOC relating to Maui legacy gas (including those provisions that related to retrospective allocations of Maui legacy gas) be deleted. Gas Industry Co supported the changes, which came into effect on 12 December 2008, too late to be captured in the Options Paper released in December 2008.

[5] The Options Paper, analysis of submissions and related submissions are available on Gas Industry Co's website.
[6] Until recently, pipeline balancing was largely managed through gas supply flexibility from the Maui Gas field, at no explicit cost to pipeline users. Even after the Maui pipeline became an open access pipeline in 2005, the overhang of legacy arrangements prevented the true cost of balancing being passed through to the beneficiaries of balancing services. During this period, both the Maui and Vector pipelines experienced significant volatility in imbalance, well beyond linepack flexibility.

MDL also stated in its submission their view that pipeline behaviour had improved since the removal of Maui legacy provisions. As evidence, MDL compared excess daily imbalance totals for January and February 2009 with excess daily imbalance totals from 2007 and 2008. The graph showed that there was a significant decrease in excess daily imbalance, which MDL attributed to Maui legacy gas changes.[7] They argued these changes placed greater incentives on users to self-balance and, therefore, avoid ILONs and cash-outs.

Changes to Maui pipeline residual balancing arrangements

In addition to the removal of legacy provisions from the MPOC, other changes have occurred to Maui pipeline balancing arrangements since the release of the Options Paper. These changes include:

- revised balancing instructions and operating procedures for balancing gas;
- further development of MDL 'Dashboard' (showing balancing gas transactions); and
- introduction of MDL's Balancing Gas Exchange (a 'spot market' for balancing gas).

1.4 Gas Industry Co comments on changes

Gas Industry Co acknowledges the significant changes that have taken place since December 2008, which have improved incentives, created additional flexibility and increased transparency.

While Gas Industry Co considers that the above changes have begun dealing with its concerns, we do not think they yet demonstrate that current balancing arrangements fulfil Gas Act and GPS objectives. Apart from general concerns about poor governance and unclear role definition, a number of specific matters raised by Gas Industry Co have been given little or slow attention, as noted below. Resolution of all these matters is necessary for the functioning of an efficient and durable balancing market.

Allocation of cost to causers and transparency of balancing transactions

Currently the link between balancing costs and cash-out prices is loose. MDL routinely cashes out parties when they have failed to return Accumulated Excess Operational Imbalance (AEOI), regardless of whether or not aggregate balancing actions have been taken. A large proportion of balancing costs are socialised and it is unclear how MDL is accounting for title to all balancing gas.

Gas Industry Co advocates cashing out only when balancing actions are taken; with the price of any cash-out reflecting the cost of the balancing action. Transactions should be accounted for and disclosed in terms of gigajoule (GJ) and dollars (see 'linepack accounting' below).

[7] See page 3 of MDLs submission on the Options Paper is available on Gas Industry Co's website.

Linepack accounting

Although MDL's Balancing Gas Exchange has improved the visibility of balancing gas transactions, there is little information about them. Gas Industry Co advocates publishing regular (monthly) linepack statements recording transactions in dollar and GJ amounts. These accounts should be audited annually.

Tolerances

The previous Options Paper concluded that an independent expert review of tolerances was required to establish:

- the levels of tolerances that would allow users to fully take advantage of the inherent flexibility of the pipelines;
- the levels of tolerances that would be efficient at present; and
- the factors influencing the setting of future tolerance levels.

MDL noted in its submission that it was reviewing tolerances. Therefore in its Analysis of Submissions Paper (p43) Gas Industry Co noted that it would '… seek all reasonable opportunities to avoid duplication of effort with MDL's own tolerance review'. The results of MDL's tolerance review are not yet known.

Unaccounted for gas

The treatment of unaccounted for gas (UFG) on the Maui pipeline emerged as a concern during the MDL balancing workshops (which followed the over-pressure incidents of November and December 2006). In June 2007, Gas Industry Co issued an independent expert report on the treatment of UFG. Among other matters, the report concluded that:

> To the extent that UFG is not offset by balancing gas bought or sold by the pipeline operator, it will be manifested in equal and opposite imbalances in linepack, mismatch or operational imbalance or a combination of these… Based on information provided by the MDL CO [Commercial Operator], aggregate UFG over the period from MDL open access (1st October 2005) to the end of May 2007 is approximately minus 1.25PJ [petrajoules]. Only a small amount of this UFG has been sold by the MDL CO. The remainder is primarily manifested as a large negative OI [Operating Imbalance] at Oaonui, as a consequence of the MDL CO issuing balancing put requests to the Oaonui WP [Welded Point] in order to manage linepack.[8]

[8] See 'UFG Management and Reconciliation: An Independent Expert Report', June 2007, Creative Energy Consulting, pg. 48, available on Gas Industry Co's website.

The report went on to suggest how UFG could be dealt with in future to avoid it distorting balancing transactions. MDL has not yet published a policy on UFG and Gas Industry Co understands that UFG continues to be washed up in balancing gas transactions.

1.5 Objective of this paper

As a result of the consultation process and the changes that have occurred in the industry since the end of 2008, Gas Industry Co issues this Transmission Balancing Second Options paper (Second Options Paper). The purpose is to present practicable options for resolving high-priority issues relating to pipeline balancing. These options reflect:

- our obligations to ensure outcomes are consistent with objectives under the Gas Act and the Government Policy Statement on Gas Governance (GPS);
- submissions on the Options Paper, including differing perspectives on the 'hybrid' solution;
- input from the TPBAG;
- changes that have occurred in gas balancing arrangements since the Options Paper was released; and
- our responsibility to be confident that balancing is efficient and includes governance arrangements that ensure stable pipeline balancing in the long-term.

This paper begins the last stage in the process before Gas Industry Co prepares a Statement of Proposal, which will be released for a final round of consultation. The Statement of Proposal will outline our preferred option before making a recommendation to the Minister of Energy and Resources on how we believe the Minister should respond to the current balancing environment.

1.6 Outline of this paper

Section 2: Objective and Scope In this section we establish the regulatory objective and the resulting scope of the current work.

Section 3: Evaluation criteria The evaluation criteria used for assessing the options are presented here. They have been cross-referenced against the Gas Act and GPS objectives, as well as against the various criteria used in previous balancing papers.

Section 4: Reasonably practicable options This section discusses Gas Industry Co's previous proposal, the 'hybrid' approach, and why conclusions from the consultation process have led us to

release further options. The reasonably practicable options are first presented here, together with an analysis of their features.

Sections 5, 6, 7 and 8 These sections describe each of the reasonably practicable options in more detail.

Section 9: Evaluation of options This section contains an evaluation of each option against the criteria set out in section 3. The sensitivity of the results to the evaluation categories of efficiency, cost and governance is presented, and a conclusion on Gas Industry Co's preferred option is reached.

Section 10: Conclusions This section summarises the balancing work stream process and conclusion.

Section 11: Next steps This section sets out a proposed timetable to enable a recommendation to be made to the Minister by the end of December 2009.

1.7 Submissions requirements

Gas Industry Co invites submissions on the Second Options Paper. We are particularly seeking responses to the questions that are highlighted at various points in the paper. Submissions on the questions should be provided in the format shown in Appendix A.

Submissions are due by **5pm on Monday, 17 August 2009**. Please note that submissions received after this date may not be able to be considered.

We prefer receiving submissions in electronic form (Microsoft Word format and PDF). Submissions may be uploaded on our website at www.gasindustry.co.nz. You will need to log in as a user and upload the submission on the consultation page by clicking on the submissions button.

Gas Industry Co will acknowledge receipt of all submissions electronically. If you do not receive electronic acknowledgement of your submission within two business days, please contact Jay Jefferies on 04 472 1800.

Gas Industry Co values openness and transparency and therefore submissions will generally be made available to the public on our website. If you intend to provide confidential information in your submission, please discuss this first with Ian Wilson at Gas Industry Co (04 472 1800).

Gas Industry Co will release a paper containing a summary of submissions as well as our analysis and conclusions.

2 Objective and Scope

In this section we establish the objective and scope of the current work. The scope identifies what is 'in scope' and 'out of scope' for the purposes of the options presented in this paper.

2.1 Objective of the current work

In light of recent industry changes (see section 1.3) and feedback from participants on the objectives identified in the Options Paper, Gas Industry Co has determined that in addition to identifying new options, it needs to identify a new objective. One that reflects the targeted nature of the regulatory intervention Gas Industry Co is proposing in this Second Options Paper.

To be useful the regulatory objective must be specific enough to identify the scope of work, but sufficiently generalised to avoid directing the outcome.

In the Options Paper Gas Industry Co established two key principles for gas balancing arrangements:

- balancing arrangements should aim to achieve balancing at least cost, where 'cost' includes transaction costs for users; and

- users should be able to manage risks associated with balancing charges, including having good knowledge of their balancing positions and ability to hedge price risk.

In general, submitters agreed that the objectives identified in the Options Paper are appropriate for analysing balancing options. However, some submitters noted that the objective of 'least cost' balancing must be considered in the context of security of supply. Some also suggested that 'least cost' must refer to long-run costs to the economy rather than the cost to an individual or group of individuals. Another suggestion was that the ERGEG principles offered a more useful and comprehensive framework for analysis.

When considering the most helpful regulatory objective for the current work, we began by adapting the previous objective to acknowledge the suggestions made in submissions, and recognize the current objective of proposing arrangements for managing pipeline imbalance. This resulted in a very wordy objective, loaded with meaning, but rather difficult to grasp.

To provide a more understandable objective we have chosen to keep it simple, but then to acknowledge the factors that are important to achieving that objective in the evaluation criteria. The proposed objective is:

To provide an efficient, single balancing arrangement for managing pipeline imbalance.

The proposed evaluation criteria are grouped into categories of: efficiency, cost and governance. These categories are readily unpacked into their component criteria – such as security, operational costs, transparency, and so on – which are useful for analysis. A full exposition of these evaluation criteria is presented in section 3.

Q1:	Do you consider that the objective indentified in section 2 is appropriate? If not, what other objective(s) would you propose?

2.2 Scope of the current work

A broad view of balancing would encompass many aspects of the commercial and technical operation of the pipelines. However, the current focus is on the management of pipeline imbalance[9] between linepack limits through the buying and selling of balancing gas. In this paper the term 'balancing market' refers to an on-the-day market where users may buy or sell balancing gas.

Table 2 below describes matters inside and outside the scope of the regulatory options presented in this paper.

Gas Industry Co considers all the aspects of balancing listed in the table below to be important. However, we have taken account of the widespread view expressed in submissions on previous papers that a wholesale redesign of balancing arrangements is not warranted and targeted intervention is the best approach. As noted in the Issues Paper Analysis of Submissions (p20), 'As a matter of clarification, Gas Industry Co notes that it is possible for distinct parts of balancing arrangements to be regulated, there is no requirement for an "all or nothing" approach'.

Outside of the options considered in this paper, Gas Industry Co continues to work on other aspects of balancing, such as investigating tolerances and the potential to improve balancing by allocating gas deliveries on-the-day-after gas flow (known as 'D+1 allocation'[10]).

If other aspects of balancing prove to be an impediment to achieving the objectives of the Gas Act and GPS, they will be considered in future work.

[9] Pipeline imbalance is also commonly referred to as 'residual' or 'aggregate' imbalance, ie the imbalance that remains when all individual user imbalances are added together.

Table 2 Scope of proposed regulatory options

Inside the scope of proposed regulatory options
The management of individual user imbalance, including requiring each user to: • maintain a balanced position; and • accept a share of a balancing gas trade where the user has failed to balance and has contributed to the need for the balancing action. The management of pipeline imbalance, including: • requiring a single Balancing Agent to manage linepack on both the Maui and Vector pipelines; • describing the role and responsibilities of the Balancing Agent; • requiring the Balancing Agent to: o procure balancing gas on an open market; o use back-to-back cash-out (see Appendix F); and o disclose GJ and $ linepack transactions. • defining the use of curtailment where there is insufficient balancing gas available, including the potential for damage claims if necessary; • requiring TSOs to co-operate with the Balancing Agent and provide it with access to information and systems necessary to perform its role. The management of disputes and policy changes, including: • a requirement that all disputes are referred to the Rulings Panel; and • a balancing policy establishment and change process (for the participative regulation option).
Outside the scope of proposed regulatory options
Matters that Gas Industry Co is continuing to work on with the industry include: • investigating the potential to improve balancing by allocating on-the-day-after gas flow (known as 'D+1 allocation'); • investigating extended nominations; and • reviewing tolerances. Matters that Gas Industry Co will review in future include: • upstream allocations (also known as 'title tracking'). Matters that are not currently priority issues: • scheduling of gas flows; • the transmission service nomination cycle; • the trading of tolerances and imbalances;

[10] A D+1 allocation process will not remove the need for a residual balancing role, even if it may reduce its size. In addition it will take some time to determine the cost and practicality of D+1 allocations, with little expectation that the process would change any conclusions in this paper.

- wholesale or retail trading of gas;
- capacity booking; and
- time-of-use metering requirements.

Submissions on the previous Options Paper showed that at times we did not effectively communicate all of the concepts we had presented. Moreover, we can appreciate that there are two different regimes in which industry operates under and therefore interpretations can easily differ. To ensure there is better alignment between what is presented in this paper and industry's interpretation of it, Gas Industry Co would like to confirm its view on several items included in the scope above.

Users' obligations to balance

Both the MPOC and the VTC put obligations on users to maintain balanced positions.[11] An issue discussed in TPBAG meetings is whether there is any need for a further obligation to balance being set out in regulations, or whether it would adequate for the regulations to refer to the codes. There has even been some suggestion that there is no need for an obligation to balance at all, providing the consequences of not balancing are clearly signalled.

Gas Industry Co has previously observed that if system users were free from any obligation to balance, the balancing market would need to be able to accommodate large unbalanced gas flows. Because the demands on the balancing market may be greater – larger volumes, and more volatility – there may be more frequent failures of the market leading to curtailment and contingency situations.

A further consideration is that, if a damages regime is to be provided in regulations; such damages would need to arise from the breach of an obligation – the obligation to balance. It would then seem desirable to also set out that obligation in the regulations.

Opposing views suggest that it may be confusing to have an obligation to balance in regulations and also in the MPOC and VTC. Each may be slightly differently worded and have different consequences for a breach.

At this stage Gas Industry Co has included an obligation to balance as a feature of the regulated options. The regulations would also need to set out the sole consequences of a breach of this obligation so that the obligation does not give rise to any unintended consequences for users. We welcome feedback on this matter.

[11] The MPOC requires each Shipper to ensure that it's nominated quantities balance (section 8.2) and are given in good faith (section 8.3). Each Welded Party is required to flow a quantity of gas equal it its daily scheduled quantity (which is the sum of approved nominations). Each Welded Party is required to use reasonable endeavours to manage flows so that Running Operational Imbalance tends towards zero over a reasonable period of time.

The VTC requires each Shipper to use all reasonable endeavours to ensure daily balance on each pipeline, other than to reduce running mismatch (section 8.1). Where an ILON has been notified to Vector, each Shipper must manage its running mismatch position towards zero over 'a reasonable period of time' (section 8.2).

Back-to-back cash-outs

The regulated options in this paper would enable back-to-back cash-outs to occur. That is, after the Balancing Agent performs a balancing action (buying or selling balancing gas) the transaction should then be allocated to the maximum extent possible among users with excess imbalance positions that caused the need for the action. The allocation should occur as swiftly as possible after the need for the action is identified and takes place and the price of the allocated gas should reflect the price at which the transaction occurred.

See Appendix F for further details how we envisage back-to-back cash-outs will work in practice.

Tolerances

Gas Industry Co has included provisions for tolerances in the regulated options presented in this paper. In our Analysis of Submissions on the Options Paper (p43) we said we would…'review Maui tolerances, but seek all reasonable opportunities to avoid duplication of effort with MDL's own tolerance review'. As noted earlier, MDL has yet to provide Gas Industry Co with the details of its review. This does not change our position as we will still undertake a review of tolerances on the Maui pipeline.

However, regardless of the outcome of that review there are certain things we believe about tolerances. They are that:

- the sum of individual tolerances must not exceed the inherent balancing flexibility (because balancing costs will be socialised if it does); and

- tolerances can be an efficient means of allocating the inherent balancing flexibility of the pipeline, provided they can be traded.

Curtailment and damages

Gas Industry Co has included the use of curtailment[12] and a damages regime as inside the scope of the regulated options presented in this paper, however, we have not yet formed a concrete view on whether either will be included. In Appendix A we have asked an optional question as to whether or not participants support the inclusion of curtailment and a damages regime. We hope that from the feedback provided, we will be able to further refine our view.

Q2:	Do you agree that the scope of the proposed regulatory options for this paper identified in section 2.2 is reasonable? Are there any items that should be considered in the scope that Gas Industry Co has not identified? Alternatively, are there any items in the scope that Gas Industry Co has included that should not be included?

[12] For clarity, curtailment for the purposes of this paper means an on-the-day instruction to reduce gas flow (ie an operational flow order) and does not mean a capacity constraint curtailment, applied while approving nominations.

3 Evaluation criteria

In this section we develop a set of evaluation criteria to be used for evaluating the balancing options presented in this paper. These criteria are intended to assess whether the regulatory objective is achieved in a manner which is compatible with the objectives set out in the Gas Act and GPS. The options are presented in sections 5, 6, 7 and 8 and then evaluated against the criteria in section 9.

For completeness we first review previous evaluation criteria used in Gas Industry Co's balancing papers. The various criteria are cross-referenced to confirm consistency and avoid omissions.

3.1 Previous evaluation criteria

Section 43N(1)(c) of the Gas Act states that:

'Before making a recommendation to the Minister for a gas governance regulation, the industry body or the Commission must:

> (c) ensure that the objective of the regulation is unlikely to be satisfactorily achieved by any reasonably practicable means other than the making of the regulation (for example, by education, information, or voluntary compliance)…'

In previous discussion papers on balancing arrangements, Gas Industry Co has shown why it considers regulatory intervention in the current balancing market is necessary in order to fulfil objectives found in section 43ZN of the Gas Act and GPS.

In section 3 of the Issues Paper Gas Industry Co sets out the case for regulatory intervention in the balancing market. It noted that there are a number of characteristics of the balancing market which may make it susceptible to market failure. In particular:

- natural monopoly elements;
- vertical integration concerns; and
- externalities.

The paper also noted that it is good regulatory practice to only intervene where unregulated practices are unlikely to achieve efficient outcomes, and that such intervention should only occur where there is a net benefit: ie where the costs of the market failure exceeds the costs of regulation.

In the Issues Paper (p12), Gas Industry Co concluded that:

> Balancing has a number of economic characteristics which create theoretical concerns of market failure. This theory is reinforced by evidence of significant shortcomings in the existing balancing arrangements, and limited evidence that the industry will be able to voluntarily identify and agree ways to address these. For these reasons, Gas Industry Co is concerned that the Gas Act objectives discussed in Section 4.2 [of the Issues Paper] may not be achievable without regulatory intervention to address balancing issues.

In the paper, Gas Industry Co also pointed out that it was considering using the balancing principles contained in the ERGEG, 'Guidelines of Good Practice for Gas Balancing' as the basis for an evaluation framework. These principles were discussed in some detail in Gas Industry Co's Research Paper on Transmission Pipeline Balancing of April 2008.

ERGEG's Guidelines detail a framework for evaluating balancing arrangements based on principles. Although developed for the European gas markets, significant alignment exists between the ERGEG principles and the Gas Act and GPS objectives. In promoting the most efficient use of available time and resources, Gas Industry Co proposed that the ERGEG principles are adopted as a set of guidelines when considering New Zealand balancing arrangements.

A summary of the principles developed by ERGEG is listed below.

Balancing responsibilities - The primary responsibility for balancing should be with users to balance their own inputs and off takes, while the Transmission System Operator (TSO) retains overall responsibility and a residual role to retain physical balance.

Requirements for balancing rules - Rules should be fair, non-discriminatory and transparent, based on objective criteria and analysis. Rules should reduce the residual role of the TSO, subject to safe operation, and facilitate competition while removing barriers to entry.

Frequency of balance - The balancing period should be established by considering a number of objective criteria ranging from operational capability of the system to information availability. Shippers should not be exposed to risks they cannot manage, and where information is not available, consideration needs to be given to how these risks might be mitigated.

Balancing costs and incentives for the TSO - TSOs should have commercial incentives to ensure balancing actions are efficient, and procure flexibility in a transparent and non-discriminatory manner, using market mechanisms where possible.

Tolerance services - Tolerance levels weaken balancing incentives as they cause socialisation of costs across participants. Where used, tolerance should reflect the technical capability of the system and be reduced over time as the market develops and matures.

Information and transparency - TSOs should provide sufficient, timely information on the balancing status of network users. This should be in a format which is meaningful, quantifiable and easy to use. TSOs may use provisional allocations of imbalance charges to reduce the risk to Shippers.

Harmonisation of balancing rules - Rules should be compatible and streamlined across different TSO systems to facilitate gas trades.

Provision of flexibility - Balancing regimes should provide an appropriate mix of risk and incentive for market participants to manage their imbalance positions. Flexibility tools should be available on a non-discriminatory basis and be available for market participants to efficiently manage their risks.

Submissions on the Issues Paper recognised the value of the ERGEG principles as a framework against which to evaluate balancing arrangements in New Zealand. However, a number of parties noted that the guidelines should not be applied as a complete or prescriptive 'paint by numbers' regime and should only be used as a point of reference. It was suggested that the ERGEG principles could be a useful tool for initial dissection of the topic and as a touchstone for assessing options, but less useful for the narrower question of framing and evaluating options for regulatory intervention. Rather, regulatory intervention needed to be assessed in relation to the Gas Act and GPS objectives. The overriding theme emerging from the discussion was that the principles should be used with caution and that economic efficiency should remain the most important factor for assessing balancing arrangements.

In the Analysis of Submissions on the Issues Paper, Gas Industry Co agreed that ERGEG principles should not be used as a rigid prescriptive formula, and noted that this was not the intention. It also agreed that any regulatory intervention needs to be justified in terms of Gas Act and GPS objectives.

The Options Paper, in line with section 43N (1)(a) of the Gas Act sought to 'identify all reasonably practicable options for achieving the objective of the regulation'. In it we proposed a 'hybrid' approach, one element of which involved regulation. Essentially the regulation was aimed at establishing a single independent Balancing Agent, with defined accountability and service levels, who would manage any aggregate imbalance in the pipelines by buying or selling balancing gas on a market, and recovering the costs of such balancing actions from the causers.

For the purposes of assessing options presented for balancing in the Options Paper, Gas Industry Co considered that the Gas Act and GPS objectives fell into two groups, one relating to promoting service standards, the other relating to promoting efficiency. Accordingly we suggested that the two key principles (or objectives) outlined in section 2.1. Gas Industry Co then designed a set of criteria to assess the options proposed against these objectives.

3.2 Current evaluation criteria

Gas Industry Co has developed a set of evaluation criteria for the balancing options presented in this paper. The criteria are shown in the table below.

Table 3 Evaluation criteria

Category	Criterion	Meaning
Efficiency	Production	maximise productive efficiency
	Allocation	maximise allocative efficiency
	Security	maximise security of gas transportation
	Risks	ensure user risks are reasonable and manageable
Cost	Agreement	minimise cost of agreeing arrangements
	Implementation	minimise cost of implementing arrangements
	Operation	minimise cost of operating arrangements
Governance	Transparency	ensure transparency and non-discrimination
	Adaptability	ensure arrangements able to adapt to future circumstances
	Enforcement	ensure effective enforcement and dispute resolution
	Balance	ensure balance between stakeholder interests
	Stability	ensure stability of regime

The significance of each criteria to the regulatory objective of defining a single arrangement for managing pipeline imbalance is discussed below.

Efficiency

Productive efficiency

Gas Industry Co believes that balancing arrangements should enable gas supply at least cost to New Zealand over time. An important element of this is the effectiveness of the single Balancing Agent in providing a centralised residual balancing service at minimum direct[13] cost.

The direct costs will depend upon the level of imbalances and the price and availability of balancing gas. For given levels of these inputs and outputs, the Balancing Agent is productively efficient if direct costs are minimised.

Productive efficiency may be promoted by arrangements that:

- encourage participation and promote competition in balancing gas supply;
- ensure that balancing gas is only purchased when, and to the extent, necessary;
- purchase from the cheapest source of available balancing gas; and
- maximise the use of flexible linepack, subject to TSO thresholds.

Allocative efficiency

Balancing arrangements are allocatively efficient if they provide the 'right' amount of service to the right users. That is, users only use the centralised residual balancing service where they are unable to self-balance at a lower cost and, conversely, users self-balance only where the Balancing Agent is unable to provide residual balancing at a lower cost.

Since, in some cases, users may have the option of using their balancing gas resources to self-balance or to offer these resources to the Balancing Agent, allocative efficiency also means that these resources are used where they have the most value. Therefore, arrangements that are allocatively efficient will result in efficient use of existing assets and over time in efficient investment in new systems and new flexible capacity.

Allocative efficiency is ensured when the price to users (at the margin) of the centralised residual balancing service is equal to the marginal cost of the Balancing Agent providing that service and where the price paid by the Balancing Agent to users providing Balancing Gas equals the marginal value of that balancing gas to the Balancing Agent.

Allocative efficiency may be promoted by arrangements that:

[13] Overheads and transaction costs are addressed under the 'operating cost'criterion.

- ensure a common price is paid for all equivalent balancing gas;

- ensure that the price paid at the margin for the centralised residual balancing service is equal to the price paid for the balancing gas; and

- give users the flexibility to choose whether to use their balancing gas resources for self-balancing or the residual balancing services provided by the Balancing Agent.

Security

Balancing is needed to ensure that linepack remains within the limits necessary to support an uninterrupted transportation service. If linepack is outside these limits, deliveries or receipts may need to be curtailed. This security aspect of managing pipeline imbalance was not directly recognised in the Options Paper, but Gas Industry Co acknowledges that it is an important aspect of managing pipeline imbalance.

These limits are formalised in the balancing arrangements as the 'thresholds'. So, there are two aspects to security:

- ensure that the thresholds are set so that transportation is secure whenever linepack is within these thresholds; and

- minimise the number of times linepack is outside of these thresholds.

There is a natural tension between productive efficiency and security. A Balancing Agent may improve security by reducing the thresholds or by being quicker to purchase balancing gas, but this will add to costs and so reduce productive efficiency.

The two criteria could be combined by attributing a cost to any curtailment and including this cost as part of the direct balancing costs. However, it is considered clearer to keep these criteria separate.

User risks

The imposition of balancing charges will create risks for users as both the quantity and price of imbalances are uncertain. Higher risks may lead to reduced profitability and potentially the exit – or perhaps delayed entrance – of some market players. To the extent that smaller participants face proportionately greater risks, this could reduce competition.

Alternatively, higher risks might lead to the need for higher retail margins and hence higher retail price. Risks might also be passed on directly to end-users.

Risks might be managed in a number of ways:

- by improved self-balancing (eg better forecasting);
- by ensuring balancing gas is sourced from an open market that maximises available capacity;
- by arrangements that allow balancing prices to be moderated or costs socialised (eg through price caps or user tolerances);
- by ensuring a common price to balancing gas providers and users, so that a user with balancing gas can self-hedge by offering that gas to the Balancing Agent; and
- by providing timely information to users on individual and aggregate imbalances.

Cost

The direct cost of balancing is addressed above under the productive efficiency criteria. Here we consider overhead and transaction costs. For ease of analysis they are considered in three categories: agreement cost, implementation cost, and operating cost.

Agreement cost

In the time taken to reach agreement on the future balancing arrangements, both direct costs (eg negotiating time) and indirect costs (the relative cost of continuing under the current arrangements) are incurred. These costs would be expected to be proportionate to the time taken to reach agreement.

Implementation cost

This criterion represents the costs incurred between agreement and implementation. There will be some direct costs (mainly related to IT development and to possible re-organisation of balancing-related staff and resources) and indirect costs (related to the implementation time). Costs incurred by the Balancing Agent, by TSOs and by users must all be considered.

Implementation costs will depend upon the degree of change from the existing arrangements and the implications of this change for IT systems.

Operating cost

This criterion refers only to the overheads associated with the balancing arrangements and not the direct cost of the balancing gas itself.

Overheads will be incurred by the balancing arrangement and will therefore depend upon the structure of these: eg whether they are independent of the TSOs.

Operating costs also include the transaction costs associated with balancing, including the trading and analysis processes undertaken by users to offer balancing gas and manage balancing risks, as well as the Balancing Agent's trading and settlement processes. The level of these costs – other things being equal – will depend upon the complexity of the balancing arrangements.

Governance

Governance has been a consistent concern in Gas Industry Co's analysis of balancing arrangements. As noted in previous papers, our responsibility is to be confident that balancing is not only being achieved efficiently, but also that its governance arrangements provide stability and longevity. For clarity, the analysis below considers five aspects of governance: transparency and non-discrimination; adaptability; enforcement; balance; and stability.

Transparency and non-discrimination

Transparency requires that the actions of the Balancing Agent are known and understood by all stakeholders (particularly users and TSOs), together with their implications for balancing charges and risks.

Transparency would reveal any overt discrimination: for example, where the Balancing Agent buys balancing gas from an affiliate although cheaper gas is available from a non-affiliate. However, it would not necessarily prevent the design of the balancing arrangements being discriminatory.

Adaptability

As circumstances change and understanding of balancing issues improves there may be a need or desire to reform and amend the implemented balancing arrangements. Since there is generally no shortage of ideas about how to change, the adaptability of the arrangements will primarily relate to governance: how proposed changes are assessed, agreed and implemented.

Enforcement

The rights and obligations of all parties to the balancing arrangements – the Balancing Agent, users and TSO – must be properly enforced. This requires that activities are properly monitored so that breaches are identified and that appropriate sanctions are imposed on the non-compliant participant that breaches are appropriately discouraged.

Where potential breaches are disputed, arrangements should be in place that allow the disputes to be resolved quickly and at a cost commensurate to the cost of the breach. Vexatious or immaterial disputes should be discouraged.

Balance

Balance requires that the interests of all stakeholders are understood and recognised in the balancing arrangements: for example, in change and enforcement processes and in the exercising of discretion in decisions related to these. Balance is particularly important where stakeholder interests are in conflict, by ensuring that costs and benefits are allocated fairly and efficiently between stakeholders.

Stability

Changes to the balancing arrangements may be costly and disruptive. To the extent that they are driven by parties external to the industry such as regulators or government, they increase the perceived level of regulatory or sovereign risk and so can increase the cost or decrease the amount of investment in gas supply. Thus stability, and perceived stability, is important in encouraging efficient investment and reducing the costs of operation.

3.3 Comparison with Gas Act and GPS objectives

Gas Industry Co must ensure alignment with the Gas Act and GPS objectives when recommending gas governance regulations and rules. Part 4A of the Gas Act relates to governance of the gas industry. In particular, section 43ZN sets out the objectives of Gas Industry Co ('the industry body') in relation to governance regulations. Section 43ZN states that the principle objective of Gas Industry Co in recommending gas governance regulations under section 43F is to:

'…ensure that gas is delivered to existing and new customers in a safe, efficient, and reliable manner'.

The other objectives are:

- 'the facilitation and promotion of the ongoing supply of gas to meet New Zealand's energy needs, by providing access to essential infrastructure and competitive market arrangements;
- barriers to competition in the gas industry are minimised;
- incentives for investment in gas processing facilities, transmission, and distribution are maintained or enhanced;
- delivered gas costs and prices are subject to sustained downward pressure;

- risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties; and

- consistency with the Government's gas safety regime is maintained'.

And paragraph 12 of the GPS adds five additional objectives Gas Industry Co must have regard for when making recommendations:

- Energy and other resources used to deliver gas to consumers are used efficiently;

- Competition is facilitated in upstream and downstream gas markets by minimizing barriers to access to essential infrastructure to the long-term benefit of end users;

- The full costs of producing and transporting gas are signaled to consumers;

- The quality of gas services where those services include a trade-off between quality and price, as far as possible, reflect customers' preferences; and

- The gas sector contributes to the Government's climate change objectives as set out in the New Zealand Energy Strategy, or any other document the Minister of Energy may specify from time to time, by minimizing gas losses and promoting demand-side management and energy efficiency.

Table 4 below illustrates how the evaluation criteria derive from the Gas Act and GPS objectives.

Table 4: Evaluation criteria and Gas Act and GPS objectives

	Efficiency				Costs			Governance				
	Production	Allocation	Security	Risks	Agreement	Implementation	Operation	Transparency	Adaptability	Enforcement	Balance	Stability
Gas delivered safely...			✓									
Access and Compeition	✓	✓		✓								
Minimise barriers				✓				✓			✓	
Investment incentives										✓		✓
Falling delivered gas costs	✓				✓	✓	✓		✓			
Manage supply risks			✓									
Safety			✓									
Promote GPS objectives	✓	✓										
Efficient resource use	✓	✓										
Full costs signaled to consumers		✓										
Quality that customers wants		✓		✓								
Promote energy efficieny	✓	✓										

3.4 Comparison with the Issues Paper evaluation criteria

The evaluation criteria can also be cross-checked against the ERGEG principles considered in the Issues Paper.

Table 5: Evaluation Criteria and ERGEG principles

	Efficiency				Costs			Governance				
	Production	Allocation	Security	Risks	Agreement	Implementation	Operation	Transparency	Adaptability	Enforcement	Balance	Stability
Responsibilities clear								✓		✓		
Open to all credible providers	✓							✓				
Transparent process								✓				
Efficient and flexible	✓	✓										
Prices reflect market value		✓										
Users can manage imbalance risk				✓								
Effective price signals to users				✓								
Minimises additional regime costs						✓	✓		✓			✓
Timely implementation					✓	✓						

Table 5 illustrates that most of the evaluation criteria correlate with ERGEG principles. There are three criteria that do not correlate: 'implementation', 'adaptability' and 'stability'. This may reflect the somewhat different purposes of the criteria. The ERGEG principles are intended to assess the efficacy of existing balancing arrangements, whereas evaluation criteria developed for this options paper are to

be used to compare alternatives. However, all of the ERGEG principles map to at least one of the evaluation criteria used in this options paper.

3.5 Comparison with the Options Paper evaluation criteria

The evaluation criteria can also be cross-checked against the evaluation criteria employed in the December 2008 Options Paper.[14]

Table 6: Evaluation Criteria and objectives in previous options paper

	Efficiency				Costs			Governance				
	Production	Allocation	Security	Risks	Agreement	Implementation	Operation	Transparency	Adaptability	Enforcement	Balance	Stability
Responsibilities clear								✓		✓		
Open to all credible providers	✓							✓				
Transparent process								✓				
Efficient and flexible	✓	✓										
Prices reflect market value		✓										
Users can manage imbalance risk				✓								
Effective price signals to users				✓								
Minimises additional regime costs						✓	✓		✓			✓
Timely implementation					✓	✓						

[14] See section 7.1 of the Options Paper, available of Gas Industry Co's website.

Table 6 illustrates that most of the evaluation criteria correlate with the objectives in the first options paper. There are two that do not correlate: 'security' and 'balance'. Their inclusion reflects concerns expressed on these areas within submissions on the Options Paper.

3.6 Principles for balancing arrangements

Section 2.1 of the Options Paper defined the principles underlying the balancing arrangements as:

- balancing arrangements should aim to achieve balancing at least cost, where 'cost' includes transaction costs for users; and

- users should be able to manage risks associated with balancing charges, including having good knowledge of their balance positions and having an ability to hedge price risk.

Table 7 below illustrates how these two principles correlate with the evaluation criteria.

Table 7: Evaluation criteria and balancing principles

	Efficiency				Costs			Governance				
	Production	Allocation	Security	Risks	Agreement	Implementation	Operation	Transparency	Adaptability	Enforcement	Balance	Stability
Least cost	✓	✓	✓		✓	✓	✓		✓			
Manageable risk			✓	✓				✓	✓	✓	✓	✓

In this context, 'risk' goes beyond the short-term financial risk and also looks at the risks embedded in the governance arrangements.

Q3:	Do you consider that the evaluation criteria set out in section 3 are appropriate for evaluating options for pipeline balancing arrangements? If not, why?

4 Reasonably practicable options

The Gas Act requires Gas Industry Co to identify all reasonably practicable options before recommending rules or regulations to achieve an objective. In this section we describe how those options have been identified, and discuss the features we expect them to have.

4.1 Previous Gas Industry Co proposal: the 'hybrid' solution

In the Options Paper released in December 2008, Gas Industry Co proposed a 'hybrid' solution for improving gas balancing arrangements.[15]

The hybrid solution included:

- establishing an independent[16] Balancing Agent involving daily tendering for balancing gas;
- commissioning an independent expert review of pipeline tolerances;
- suggesting MPOC changes to introduce efficient allocation of cost to causers at market prices;
- investigating the feasibility of daily allocation options; and
- investigating the feasibility of Vector's balancing model.

The hybrid solution was aimed at resolving the problems in balancing arrangements first identified in section 6 of the Issues Paper and discussed further in the Options Paper. It intended providing a process that would result in:

- a single independent Balancing Agent representing the collective interests of the community of pipeline users, with defined accountability and service levels, thereby avoiding duplication and conflicts of interest in the provision of balancing services;

[15] Refer to Section 8 of the Options Paper for more detail, available on Gas Industry Co's website.
[16] That is, independent from a TSO, and therefore able to take decisions which are not influenced by other interests of that TSO.

- the development of balancing gas procurement arrangements that users can participate in to manage price risk and to access all available on-the-day flexibility;

- daily pricing of flexibility (rather than the MPOC pricing lag), and recovery of costs from causers (rather than being socialised as a result of the lengthy ILON process);

- compensation for damages following over-pressure episodes;

- further consideration of an option for Shippers to the mass market to have improved information on their daily balance position; and

- the further consideration of extended nomination options to improve compatibility between transmission systems and the equal treatment of like users.

4.2 Summary of submissions on the Options Paper

Submitters on the Options Paper expressed support for several aspects of Gas Industry Co's hybrid solution. In particular, most submitters agreed users should have the primary obligation to balance, and causers should bear the costs of balancing. In addition, a majority of submitters agreed tolerances should be reviewed and proposed changes to the MPOC considered. However, none of the submitters gave unqualified support for Gas Industry Co's independent Balancing Agent proposal. Cost was a common concern.

As noted in the introductory section on MPOC changes, several submitters believed that since December 2008 balancing behaviour has improved. Improvements have occurred largely because the Maui legacy arrangements have been removed from the MPOC. That has allowed balancing costs to flow through to parties using the pipeline's residual balancing services. The affect has been that pipeline users have improved the degree to which they manage their balance positions. In addition, MDL has developed the balancing arrangements on its pipeline by introducing a market for balancing gas.

Vector submitted that a fundamental and comprehensive redesign of the regime, implemented through regulation, is necessary (Vector had presented the outline of a redesigned regime in its submission on the Issues Paper). Other submitters on the Options Paper supported, in principle, a single balancing regime across both the Maui and Vector pipelines, managed by a single Balancing Agent. However, they expressed general satisfaction with MDL's current service as, in effect, the single Balancing Agent for the whole transmission system. There was concern that the cost of achieving a single balancing regime in the manner proposed by Gas Industry Co—by creating a single independent Balancing Agent reporting to Gas Industry Co—would be too high. MDL also objected to

the proposal on the grounds that it infringed its 'sovereignty' as a pipeline owner to manage its own affairs.

All submissions, and an Analysis of Submissions paper (which contains a fuller summary of submissions and the detail of our response), can be found on Gas Industry Co's website.

4.3 Conclusions from the consultation process

As noted in the introduction, consultation on pipeline balancing issues has included holding workshops and meetings with stakeholders, establishing the TPBAG, and publishing various expert reports and consultation documents.

The consultation process and the changes that have occurred in gas balancing arrangements since the Options Paper (see section 1.3) was released have resulted in Gas Industry Co further deliberating on practicable options for pipeline balancing. Our deliberations covered:

- the industry's various perspectives on the best solution to pipeline balancing issues including differing views on the 'hybrid' solution;
- input from the TPBAG;
- the degree to which recent changes in balancing arrangement can be considered efficient, and whether governance arrangements ensure long-term stability; and
- our obligations to ensure outcomes are consistent with objectives under the Gas Act and the GPS.

In taking all these considerations into account, it became evident that the practicable options for resolving balancing issues fall into three approaches. The options are presented below.

Q4:	Do you consider that Gas Industry Co has correctly identified the need to consider the alternative options based on our conclusions from the consultation process outlined in section 4?

4.4 Alternative options

Contracts based option

In view of improved balancing behaviour and MDL's developments of balancing arrangements, some submitters suggested that a 'status quo' option allowing for continued improvement of contract based arrangements, should be considered. This option would require minimal intervention. It could be achieved largely by changes to the MPOC and Vector Transmission Code (VTC), possibly with Gas Industry Co providing facilitation, research and analysis as required. If, on review, this approach was

found not to have satisfied our regulatory objective or have met the Gas Act and GPS objectives, regulation could be introduced at that time. We have called this status quo approach (that is, allowing the industry a further opportunity to develop a solution before recommending regulation) the 'contracts based option'. It recognises that without regulatory intervention, some form of solution will emerge.

Prescriptive regulation option

In contrast to the contracts based option is the option of regulating key features of a single balancing regime with a single Balancing Agent in place. Regulating the arrangements will provide more certainty that our regulatory objective would be satisfied and that Gas Act and GPS objectives would be met. A single balancing regime would integrate Maui and Vector balancing arrangements outlined in the regulations to allow for barriers to accessing balancing gas from either pipeline (or pipeline users) to be dissolved while maintaining individual allocation mechanisms. Regulations would mandate Gas Industry Co's 'in scope' features as discussed in previous papers and described in section 2.2.

However, there are two significant variants of this option.

- The first is essentially the preferred option identified by the previous options paper, where a single Balancing Agent[17] is appointed by and reports to Gas Industry Co.

- The second formalises current balancing practice where the MDL Commercial Operator takes actions to balance both the Maui and Vector pipelines (with targeted amendments[18]).

These options are referred to as 'prescriptive regulation option A' and 'prescriptive regulation option B' respectively.

Participative regulation option

In light of the concerns expressed in submissions about the cost and inflexibility of the regulated approach proposed in the Options Paper, we identified another reasonably practicable option. It has the potential to satisfy our regulatory objective as well as to meet the Gas Act and GPS objectives at a lower cost, yet be more adaptable. This option provides the pipeline companies with an opportunity to propose a single 'balancing policy' that meets criteria specified in regulation. The regulations will also provide deadlock breaking[19] and dispute resolution mechanisms. We call this the 'participative regulation option'. Potentially this option allows for more flexibility and change than is likely to emerge from the contracts based option or the prescriptive regulation option. For example, it may

[17] It is possible that the Balancing Agent could be a service provider independent of any TSOs or an existing TSO.
[18] Several targeted amendments include, back-to-back cash-outs and the MDL balancing market being as open and efficient as possible. See sections 7 and 8 for additional amendments.
[19] Should the TSOs fail to agree on a balancing policy, Gas Industry Co will determine it.

allow for the introduction of a version of the 'fundamental redesign' option proposed in Vector's submission on the Issues Paper.

Summary of options

Table 8 Summary of reasonable practicable options

Option	Description
Contracts Based Option	An option involving a mixture of TSO initiatives, user input and Gas Industry Co influence, described in contractual arrangements.
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.
Prescriptive Regulation Option B	An option comprising a single balancing regime, with current customary arrangements including the MDL Commercial Operator as the single Balancing Agent reporting to Gas Industry Co, fully prescribed in regulation.
Participative Regulation Option	An option which permits TSOs to develop a single balancing policy that meets criteria specified in regulation.

Each of these options is described more fully in the following sections, which also set out how each option might be achieved. Development of the regulated options has been guided by the 'in scope' features described in section 2.2. These are features consistent with earlier consultative documents[20] and desired features outlined in Appendix D.

4.5 Comparison of 'in scope' features and options

The table below lists the 'in scope' features and how each of the options identified in this paper compares.

[20] See Transmission Pipeline Balancing Issues Paper (section 7: Options design elements), and Transmission Balancing Options Paper (section 5: Assessment of core design features).

Table 9 'in scope' features compared against options

		Contracts based option[1]	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Single Balancing Regime	• Single Balancing Agent	✓ [2]	✓	✓	✓
	• Who appoints Balancing Agent	TSOs	GIC	MDL	TSOs (GIC fallback)
	• Single Balancing Policy	?	✓	✓	✓
	• Who determines Balancing Policy	TSOs	Regulation	Regulation	Regulated parameters
	• Clear & transparent roles	?	✓	✓	✓
	• Meets Gas Act & GPS objectives	?	✓	✓	✓
Management of Linpack	• Unified management of NZ linepack	?	✓	✓	✓
	• Who determines tolerances	TSOs	Regulation	Regulation	TSOs (GIC fallback)*
	• Who determines thresholds for balancing actions	TSOs	Regulation	Regulation	TSOs (GIC fallback)*
	• Clear processes for use of Balancing Agent discretion	?	✓	✓	✓
	• Clear use of curtailment	?	✓	✓	✓
	• Clear management of compressors	?	✓	✓	✓
	• Clear policies on UFG and own use gas	?	✓	✓	✓
Procurement of Balancing Gas	• Who determines market characteristics	TSOs	Regulation	Regulation	TSOs (GIC fallback)*
	• Open to all practicable sources	?	✓	✓	✓
	• Bids changeable as late as reasonably practicable	?	✓	✓	✓
	• Gas valued at market prices (not posted)	?	✓	✓	✓
	• Competitive price	?	✓	✓	✓
Allocation of Balancing Costs	• Who determines mechanism	TSOs	Regulation	Regulation	TSOs (GIC fallback)*
	• Cost to causers (back-to-back cash out)	?	✓	✓	✓
	• Enforcement of payment	Contract	Regulation	Regulation	Regulation
Transparency	• Accounting and disclosure of linepack GJ & $	?	✓	✓	✓
	• Independent action	?	✓	✓	✓
	• Audit of balancing transactions	?	✓	✓	✓
	• Service level agreement for Balancing Agent	?	✓	✓	✓
Disputes Resolution	• Single dispute resolution mechanism	?	✓	✓	✓
	• Dispute resolution forum	?	Rulings Panel	Rulings Panel	Rulings Panel
Other	• Funding (fixed cost recovery)	?	GIC	TSOs	TSOs
	• Recovery of bad debts	?	GIC	TSOs	TSOs
	• Prudential requirements	Contract	Regulation	Regulation	Balancing policy*
	• Evolution of regime	Contract	Regulation change	Regulation change	Regulation/Policy

Notes:

1 – Prior to any subsequent regulatory action that may be necessary
2 – As noted in previous papers, there is effectively a single Balancing Agent at present. The tick in this box means that this arrangement would be formalised
* – Within regulated parameters

4.6 Regulation making powers

The proposed regulations would primarily be made under the following sections of the Gas Act:

- section 43F(2)(c) (reasonable terms and conditions for access to transmission pipelines);
- section 43F(2)(a) (establishment and operation of wholesale markets for gas, including protocols and standards for reconciling and balancing gas etc); and
- section 43S (providing for a person or persons to carry out functions in relation to those regulations etc).

Within aspects of the 'regulatory options' it is also anticipated there would be contractual relationships. For example in the participative regulation option, although the primary obligation of TSOs to have a balancing policy, and appoint a Balancing Agent, would be set out in regulation, the TSOs relationship with the Balancing Agent would be contractual.

It is anticipated that monitoring and enforcement would be undertaken under the Gas Governance (Compliance) Regulations 2008, which would require some amendment to those regulations under section 43G(2)(k) of the Gas Act. In order to do so, Gas Industry Co will need to make a Recommendation to the Minister requesting that the Compliance Regulations are amended so that the balancing regulations could be enforced through the existing compliance regime.

5 Contracts based option

In this section we discuss the 'status quo' approach, that is, the option of allowing the industry a further opportunity to develop a contracts based solution before recommending regulation. Because this status quo approach might evolve into a contracts based solution satisfying the Gas Act and GPS objectives as well as meet our regulatory objective, it should be considered reasonably practicable.

5.1 Description

A contracts based solution could emerge from a mixture of TSO initiatives, user input, and Gas Industry Co influence. Primarily it would be implemented through changes to the MPOC and VTC. Gas Industry Co has no contractual right to initiate MPOC or VTC changes, but would try to influence the parties to propose changes leading towards a solution that satisfied our regulatory objective as well as met Gas Act and GPS objectives. For example, this could involve Gas Industry Co taking a facilitation role in industry negotiations. It would also monitor the situation and propose regulation if it became clear that a contracts based solution could not be achieved, or would not be achieved in a timely fashion.

This solution requires a commitment shared by all industry participants to achieve a negotiated solution that meets Gas Act and GPS objectives and our regulatory objective (that is, that seeks to achieve the same outcomes as the other options). This is likely to require a party to take the lead in facilitating a solution (possibly, but not necessarily, Gas Industry Co).

In simple terms, the process to implement this solution involves further industry negotiation[21] to develop a coherent set of proposed MPOC and VTC changes. Once developed, these would be progressed through the MPOC and VTC change processes. After the changes had been in place for a while, Gas Industry Co would again review transmission balancing arrangements and, if objectives had not been met, begin the process to recommend regulations.

This approach is in keeping with several views expressed on the Options Paper. For example, in its submission (p2), Greymouth Gas Limited commented that:

> 'Firstly, there are two over-riding questions to ask:

[21] The industry has, to some extent, been involved in analysing and negotiating balancing issues since the inception of the MPOC development process in 2004, through to the current VTC re-negotiation.

1. What can be done better now, broadly in line with the current arrangements (i.e. with Vector and MDL both as Balancing Agents)?

2. Then, after this is addressed, should there be a single independent Balancing Agent or is the current Vector & MDL arrangement sufficient?

Greymouth Gas believes it remiss to tackle the second issue before a full options' analysis is undertaken on the first and before any of these recommendations are implemented, and the success measured'.

Table 10 provides a summary of features Gas Industry Co would prefer a balancing regime to contain. If the contracts based option were identified as the option to pursue, the extent to which it contained these features, or was otherwise able to achieve the regulatory objective, would be subject to the later review.

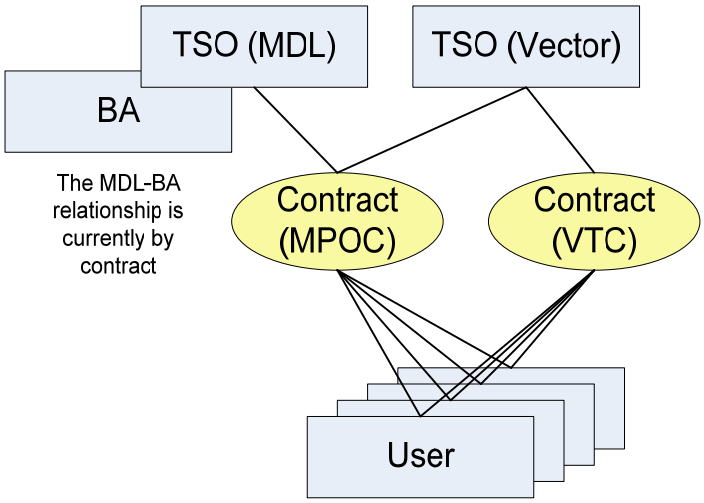
Table 10 Preferred features of contracts based option

Distinguishing features
Industry negotiation: • would determine the extent and content of the reform; and • should be directed to having reforms in place ready for a review in mid-2011 by Gas Industry Co.
Key features (in common with other options)
Gas Industry Co would prefer a contacts based solution to: • require users to use reasonable endeavours to maintain balanced positions; • require a single balancing regime; • describe the functions of a Balancing Agent; • require a Balancing Agent to manage aggregate residual imbalance and allocate cost to causers; and • require a Balancing Agent to use an open and efficient balancing market.
Other features (in common with other options)
Gas Industry Co would prefer a contacts based solution to also: • provide a damages regime; • describe mechanisms for curtailment; • maximise tolerances while minimising socialised costs (no greater than inherent pipeline flexibility); • clarify the management of base linepack, TSO own-use gas and UFG; • provide for and describe the mechanism for back-to-back allocation of balancing gas title and costs; • ensure balancing gas is competitively priced (reflecting the marginal cost of supply and demand); • describe the mechanism for buying and selling balancing gas; • describe the mechanism for allocating the title and cost of balancing gas to pipeline users that is back-to-back with balancing gas title and cost; • provide a Balancing Agent with thresholds for taking balancing actions; and

- set out operating instructions on how a Balancing Agent is to perform its duties.

Figure 1 below depicts the relationships between the TSOs, Balancing Agent (BA) and users for the contracts based option.

Figure 1 Balancing relationships for contracts based option



5.2 Costs: development and ongoing

Under this contracts based option, it is assumed that the cost of providing a residual balancing service will be met by system users, as at present. It may be that there would be an additional cost burden during the period when modified arrangements are being negotiated. However, since there is already a large amount of the industry's time spent on balancing related matters the additional cost may not be significant.

Depending on the extent of contract and system modifications which result from the negotiation process, there may be development costs associated with changes to systems such as OATIS. It is assumed that these costs would be funded by the TSOs and recovered through pipeline tariffs, as at present.

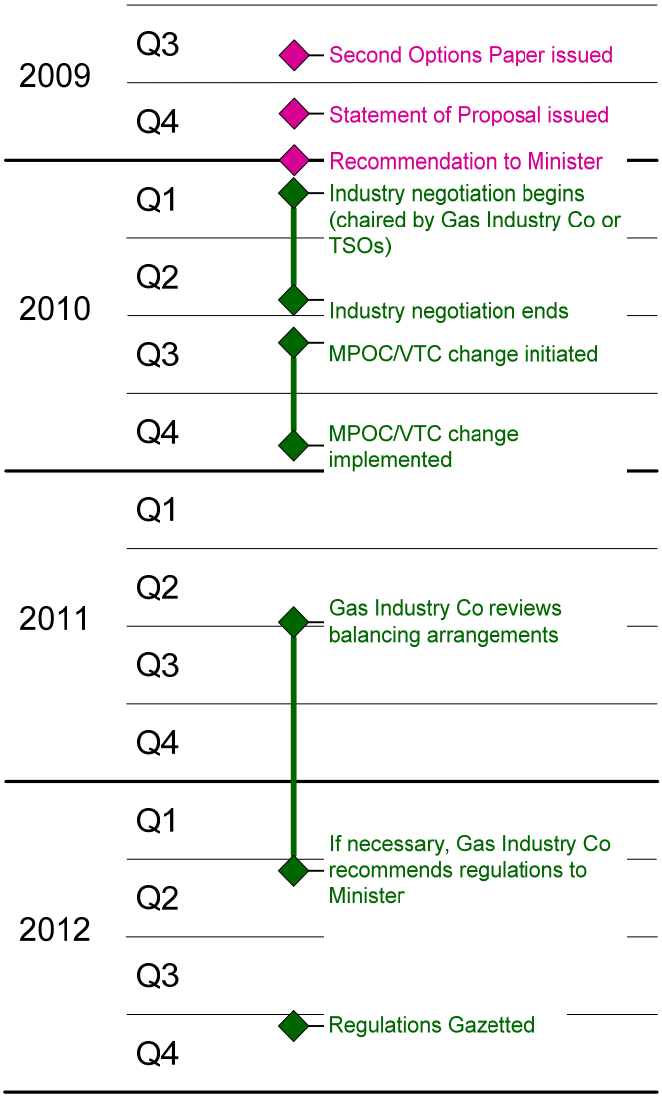
Ongoing costs would include the costs of performing the Balancing Agent functions, including the net results of balancing gas trading activity (including recovery of any bad debts). Gas Industry Co considers that these costs would also be recovered through pipeline tariffs, as at present.

5.3 Timetable

A possible timetable for this option is illustrated below. It assumes that focussed industry negotiation would begin as soon as Gas Industry Co recommended the contracts based option as its preferred option to the Minister. Such a recommendation would include a proposed review after a period of operation to assess whether the Gas Act and GPS objectives had been achieved and our regulatory objective satisfied. It is assumed that it would be reasonable to begin such a review in mid-2011. This would allow approximately six months for industry negotiation, four months to process MPOC/VTC changes and over six months of operation before the review begins.

It has been assumed that sufficient changes would have occurred between this Second Options Paper and the beginning of the review (ie between July 2009 and mid-2011) to warrant a full regulatory review. This would involve a reassessment of the issues, further consideration of options, and a statement of proposal, with consultation at each stage. The diagram allows nine months between the start of the review and, if necessary, making a recommendation to the Minister. If the review concluded that regulation was required, it should be possible to have any necessary regulations in place by the end of 2012.

Figure 2 Timetable for contracts based option



5.4 Is a contracts based option realistic?

Some industry participants may consider a contracts based option unrealistic because:

- there are too many competing interests among industry participants for a multilateral solution to be negotiated and agreed;

- balancing has been an ongoing issue since Maui open access began in 2005, and to date progress achieved through changes to contracts and/or operating procedures has been slow, and has only partially resolved problems; and

- Vector has given notice that it wishes to discontinue the interconnection arrangement[22] between it and MDL, which introduces further uncertainty.

We note Vector's view, expressed in its submission on the Options Paper (p7), that:

> …it is the diverse interests of all participants, and in particular the fact that the accurate allocation of balancing costs will create new liabilities for users, Shippers and producers, which has made industry agreement hard to reach and provides the strongest rationale for a regulatory approach over an industry approach.

However, other factors convince us that a contracts based solution is reasonably practicable:

- current balancing arrangements are contracts based and, in the absence of intervention, would continue to develop subject to the terms of those contracts, in particular the MPOC and VTC;

- in addition to performing its change roles under the MPOC and VTC, Gas Industry Co could provide facilitation, research and analysis as required; and

- an ongoing possibility of regulation would provide pressure on TSOs and other industry participants to improve balancing arrangements.

In relation to the first bullet point, we acknowledge that balancing arrangements have improved since the beginning of Maui open access. For example: following an MPOC change process initiated by MDL, balancing instructions from MDL to its Commercial Operator have continued to evolve; and the MDL Commercial Operator has continued to improve balancing gas procurement arrangements.

However, as we noted in our Analysis of Submissions on the Options Paper (p30):

> …the MPOC contains few protections to ensure that the Balancing Agent will conduct balancing operations in way which is consistent with Gas Act objectives. If such protections were built into the MPOC, it would need to be done in such a way which would ensure that they remain. This may require regulation.

In summary, Gas Industry Co believes there is an alternative to regulation—the contracts based option—which could develop into a solution that satisfies our regulatory objective as well as the Gas Act and GPS objectives. But the short-term and long-term outcomes of that approach are uncertain. This uncertainty makes it difficult to evaluate the costs and benefits of the contracts based approach.

We discuss some potential outcomes of the contracts based option below.

[22] The current operational balancing arrangement (OBA) is a feature of the interconnection arrangements between the two pipelines. Section 22.9 of the MPOC permits Vector (as a Welded Party) to terminate its interconnection agreement with MDL on 90 days' notice. If Vector did terminate, Vector and MDL would need to agree on alternative arrangements for interconnection.

5.5 Potential outcomes of a contracts based option

Several factors would influence the outcome of the contracts based option:

- The re-negotiation of the current interconnection agreement between Vector and MDL. This would likely result in changes to the arrangements for allocating balancing gas title and costs to Vector Shippers (the Balancing and Peak Pooling arrangements).

- Changes to the VTC. The VTC is currently under review and changes are set to be adopted before the end of the year. It is likely that changes made will impact on balancing arrangements. Additionally, in Vector's submission on the Issues Paper it proposed a balancing solution. A key feature of that solution was a single balancing regime operated by an independent Balancing Agent reporting to Gas Industry Co. While this could not be achieved through changes to VTC alone, some aspects of the proposal could be implemented through VTC changes. For example, replacing the Shipper 'mismatch' concept with Shipper 'imbalance positions' and/or introducing small station pools.

- Changes to the MPOC. There are currently two MDL initiated MPOC change requests in progress. One, initiated on 30 April 2009, seeks to reduce the minimum notice period (from seven Days to one Day) for MDL to make changes to the Negative Mismatch Price and Positive Mismatch Prices. The other, initiated on 12 May 2009, seeks to allow 'Payback Point' to mean a virtual Receipt or Delivery Point at which Shippers may nominate quantities of gas related to balancing transactions. Gas Industry Co expects to issue a final recommendation on these changes on 1 October 2009.

Because Gas Industry Co has a role in considering MPOC change requests and VTC change request appeals, it should be able to influence the outcomes of code changes to some degree. Moreover, Gas Industry Co can make recommendations to the Minister to introduce rules or regulations if it believes regulation is preferable because it better satisfies our regulatory objective and meets the objectives of the Gas Act and GPS.

5.6 Conclusion

Gas Industry Co noted in the first Options Paper that the existing contracts based option might not meet the Gas Act and GPS objectives. This was mainly because the then current arrangements did not consistently direct costs to causers, and TSOs had no incentive to balance at least cost, or sufficient incentives to ensure neutrality in their service. We believe these shortcomings are still present, despite the improvements noted in the introduction and above. However, we acknowledge the possibility that a contracts based solution could develop.

Q5: Do you agree that the contracts based option identified in section 5 is reasonably practicable? If not, why?

6 Prescriptive regulation option A

In this section we set out our proposal for implementing a regime with the 'in scope' features described in section 2.2 prescribed fully in regulation. The main distinguishing feature of prescriptive regulation option A is that the Balancing Agent is appointed by, and reports to, Gas Industry Co.

6.1 Description

The prescriptive regulation option involves regulations setting out the terms and conditions of a single balancing arrangement for open access pipelines. Pipeline owners and users would be bound into the arrangement. There are two variations of the prescriptive regulation option; this section describes prescriptive regulation option A.

Prescriptive regulation option A would allow for Gas Industry Co to appoint a Balancing Agent (which could be an existing TSO or a newly appointed service provider). The Balancing Agent would perform balancing functions across both pipelines under a single balancing regime and be required to report to Gas Industry Co.

Table 11 below summarises the features of prescriptive regulation option A. These features are all changes that would need to be made to the existing regime in order to comply with the regulations. Appendix B provides an outline of the regulations required to implement the prescriptive regulation option A.

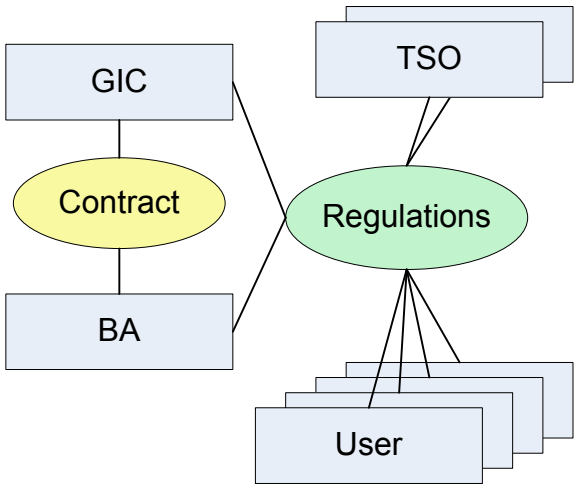
Table 11 Features of prescriptive regulation option A

Distinguishing features
Regulations would prescribe: • the full scope of the Balancing Agent's functions; • that TSOs must give the Balancing Agent access to the information and systems necessary to perform its functions; • that TSOs must provide the Balancing Agent with thresholds for taking balancing actions; • the Balancing Agent appointment process; • that the appointed Balancing Agent would report to Gas Industry Co; and • the functions of the Balancing Agent to be funded by development and ongoing fees under regulations.

Key features (in common with other options)
Prescriptive regulation option A would: • require users to use reasonable endeavours to maintain balanced positions; • require a single balancing regime; • describe the functions of the Balancing Agent; • require Gas Industry Co to appoint the Balancing Agent; • require the Balancing Agent to manage aggregate residual imbalance and allocate cost to causers; and • require the Balancing Agent to use an open and efficient balancing market.
Other features (in common with other options)
Prescriptive regulation option A would also: • provide a damages regime;[23] • describe a mechanism for curtailment;[24] • maximise tolerances while minimising socialised costs (no greater than inherent pipeline flexibility); • clarify the management of base linepack, TSO own-use gas and UFG; • ensure balancing gas is competitively priced (reflecting the marginal cost of supply and demand); • describe the mechanism for buying and selling balancing gas; and • describe the mechanism for allocating the title and cost of balancing gas to pipeline users that is back-to-back with balancing gas title and cost.

Figure 3 below depicts the balancing relationships between Gas Industry Co, the Balancing Agent, TSOs and users for prescriptive regulation option A.

Figure 3 Relationships for prescriptive regulation option A



[23] Note that this feature is still under review. In Appendix A, Optional Question 1, Gas Industry Co asks for submitters' views on including provisions for curtailment and a damages regime in the regulations.
[24] See footnote 23.

6.2 Design of regulations

The prescriptive regulation option A would include the balancing gas procurement and allocation mechanisms in detail, including balancing zones, tolerances, and interaction between the Maui and Vector systems. It will be necessary to make targeted amendments to the existing regime in order to implement the prescriptive regulation option presented here.

Suggestions in submissions on the Options Paper ranged from fundamentally redesigning the allocation mechanisms to retaining the current core design with a few targeted amendments. A fundamental redesign would require significant detailed design work and analysis. This work would be required to ensure further issues and risks are not introduced into the regime and to ensure any changes are cost efficient.

Given the differences of opinion, the complexities of the system, and the potential for unforeseen affects on users' business systems and trading arrangements, the necessary analysis could take many months and still not provide a clear answer. Even after further detailed analysis Gas Industry Co considers the preferred outcome is retaining the current core design and the same changes that have already been identified by Gas Industry Co in the previous Options Paper.

Based on the above, the design in the regulations for prescriptive regulation option A would include:

- a single balancing regime;
- a single Balancing Agent (which could be an existing TSO or a newly appointed service provider).;
- a replication of the Maui arrangements related to operational balancing agreements, operational imbalance, mismatch and curtailment (but with the amendments noted below to enable 'back-to-back' cash-outs);
- a replication of the Vector arrangement related to mismatch and allocation of balancing costs (that is, the balancing and peaking pool);
- retention of trading at the Maui/Vector interface points;
- a requirement that TSOs provide access to their information systems to the extent that is necessary for the Balancing Agent to perform its functions;
- a replication of the use of tolerances (with the potential for some optimisation as a result of any recommendations that arise from the current review);

- clarification of the accounting for base linepack, TSO own-use gas and UFG;
- a requirement that balancing gas is procured in a prescribed manner to ensure efficiency;
- amendment of the cash-out processes such that cash-outs occur 'back-to-back' with any balancing transaction, that is without notice, at the quantity and price of the balancing transaction and minimising unallocated balancing gas (see Appendix F for more detail); and
- removal of the Maui incentives pool (it would be redundant) and the addition of over-pressure damages regime.[25]

There is potential that a simple regime redesign, such as the option to create 'virtual' Maui Welded Points for large downstream users, could be analysed and considered before the end of 2009, and therefore included in the recommendation to the Minister. However this would require reasonable cooperation by users and the TSOs to meet the required timeframe.

The prescriptive regulation option requires sufficient detail to be contained in the regulations to unambiguously specify the balancing regime. This would involve replicating substantial, complex and contentious sections of the MPOC and VTC into regulations. The regulations would require that the MPOC and VTC be read subject to the regulations. If either the codes or the regulations were to impose an obligation or liability in respect of the same matter, the regulations would prevail to the extent that there is an inconsistency between the two. This detail on systems and procedures would need to be compatible as far as is reasonably possible with existing systems and procedures. This level of detail is not available at this stage. There is therefore a risk that the timetable may become extended.

6.3 Costs: development and ongoing

Cost recovery mechanisms for the development and ongoing costs of the Balancing Agent would be detailed in the regulations.

The development costs include costs that would be incurred by Gas Industry Co (as required) to establish a Balancing Agent. These costs would include but may not be limited to: the negotiation of a contract, training (as required) and implementation of tools considered necessary for the Balancing Agent to perform its duties under the regulations. This cost was estimated in the Options Paper to be $2m.[26]

[25] Note that this feature is still under review.
[26] See section 5 of the Options Paper, available on Gas Industry Co's website.

Ongoing costs would include the costs of Gas Industry Co and its appointed Balancing Agent managing and performing the Balancing Agent functions, including remuneration and the net results of balancing gas trading activity (including recovery of any bad debts). This cost is estimated to be in the order of $1.5m/annum.[27]

It is proposed that the development and ongoing costs would be recovered in a similar manner as the development fee and ongoing fees under the Gas Governance (Critical Contingency Management) Regulations 2008. This would involve the costs being recovered from every person who purchases gas directly from a gas producer.

It would be expected that, since TSOs would not be required to provide the Balancing Agent functions, there would be a reduction in transmission fees.

6.4 Disputes

Disputes with respect to the regulations would be covered under the Gas Governance (Compliance) Regulations 2008 and therefore heard by the Rulings Panel. In order to do so, Gas Industry Co would need to make a recommendation to the Minister requesting that the Compliance Regulations are amended so that the balancing regulations could be enforced through the existing compliance regime.

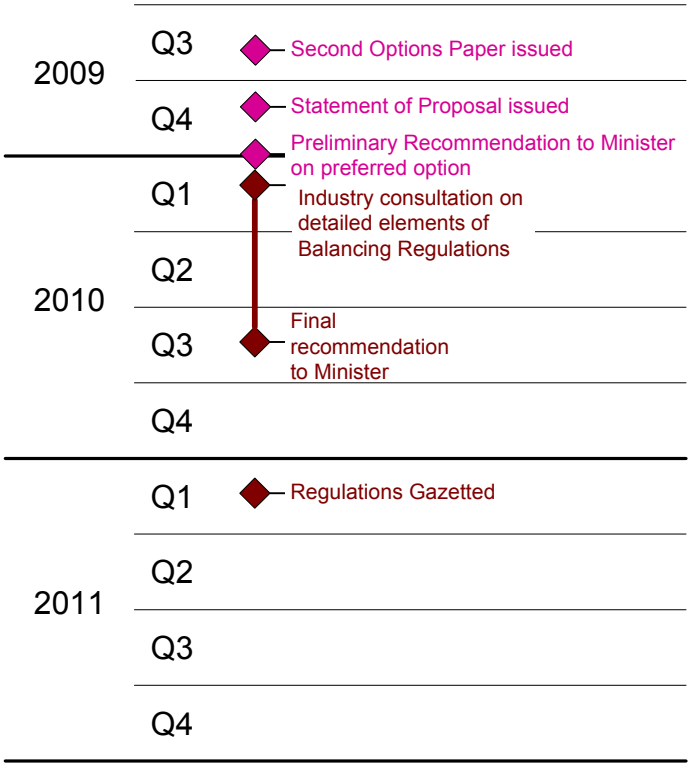
The regulations would also ensure that industry codes and any other contract related to the transportation of gas on the transmission system, or the determination of quantities of gas entering and leaving the transmission system are read subject to the regulations (to the extent of any inconsistency) and that compliance with the regulations by allocation of balancing costs does not result in double jeopardy under codes.

6.5 Timetable

A possible timetable is illustrated below. It assumes that industry consultation on the design details would begin early next year, allowing the final recommendation to be sent to the Minister in the third quarter of 2010. The regulations would be gazetted in the first quarter of 2011. To the extent that any changes would need to occur to the MPOC and VTC as a result of regulations coming into effect, we would anticipate that any MPOC and VTC change requests necessary would be identified and progressed prior to the regulations being gazetted.

[27] This cost estimation is based on the ongoing fees under the Gas (Downstream Reconciliation) Regulations 2008, which for the 08/09 gas year has estimated ongoing costs of $1,020,000. We consider that the Service Provider costs will be slightly more for the Balancing Agent- given the need for balancing can occur at any time, therefore, a 24/7 service is required. The costs incurred by Gas Industry Co are anticipated to be roughly the same.

Figure 4 Timetable for prescriptive regulation option A



6.6 Conclusion

Prescriptive regulation option A has been identified as a reasonably practicable option as it would include all of Gas Industry Co's 'in scope' features identified in section 2.2. However, there is a risk that the finer details of this option may prove problematic. Additionally, this option involves the set-up of a 'new' Balancing Agent which, as submitters on the Options Paper noted, could prove costly.

Q6:	Do you agree that the prescriptive regulation option A identified in section 6 is reasonably practicable? If not, why?
Q7:	Do consider that the outline of the prescriptive regulations in Appendix B is appropriate? If not, why?

7 Prescriptive regulation option B

In this section we set out a further proposal for implementing a regime with the 'in scope' features identified in section 2.2 prescribed fully in regulation. The main distinguishing feature of prescriptive regulation option B is that the Balancing Agent is appointed by, and reports to, MDL.

7.1 Description

Prescriptive regulation option B is the same as prescriptive regulation option A except that rather than Gas Industry Co appointing a Balancing Agent (which could be an existing TSO); the current customary arrangements are locked in place under regulation.

The customary arrangements involve MDL balancing its pipeline, and Vector balancing its pipelines through its interconnections with the Maui pipeline. The MDL Commercial Operator would therefore be confirmed in the role of single Balancing Agent.

Table 12 below contains features of prescriptive regulation option B. These features are all changes that would need to be made to the existing regime in order to comply with the regulations. Appendix B provides an outline of the regulations for prescriptive regulation option A, which would be amended appropriately to reflect this option.

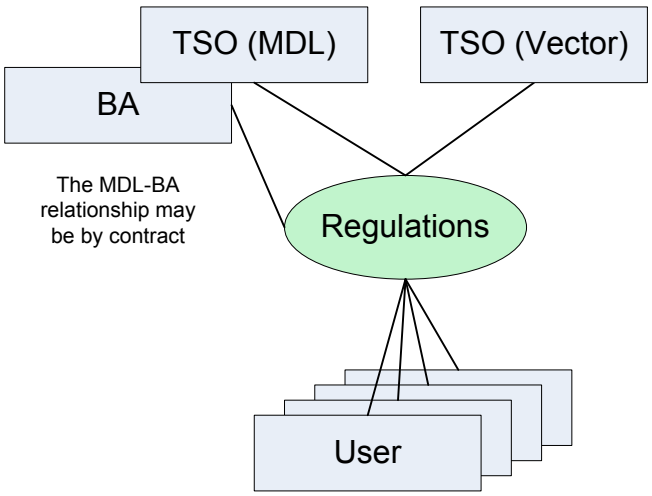
Table 12 Features of prescriptive regulation option B

Distinguishing features
Regulations would prescribe: • the full scope of the Balancing Agent's functions; • that the Balancing Agent is appointed by and would report to MDL; • that the Balancing Agent is to report to Gas Industry Co on compliance with regulations; and • that the Balancing Agent function is funded by a component of transmission fees.
Key features (in common with other options)
Prescriptive regulation option B would: • require users to use reasonable endeavours to maintain balanced positions; • require a single balancing regime;

• describe the functions of the Balancing Agent; • require the Balancing Agent to manage aggregate residual imbalance and allocate cost to causers; and • require the Balancing Agent to use an open and efficient balancing market.
Other features (in common with other options)
Prescriptive regulation option B would also: • provide a damages regime;[28] • describe a mechanism for curtailment;[29] • maximise tolerances while minimising socialised costs (no greater than inherent pipeline flexibility); • clarify the management of base linepack, TSO own-use gas and UFG; • ensure balancing gas is competitively priced (reflecting the marginal cost of supply and demand); • describe the mechanism for buying and selling balancing gas; and • describe the mechanism for allocating the title and cost of balancing gas to pipeline users that is back-to-back with balancing gas title and cost.

Figure 5 below depicts the balancing relationships between the TSOs, Balancing Agent (BA) and users for prescriptive regulation option B.

Figure 5 Relationships for prescriptive regulation option B



[28] Note that this feature is still under review. In Appendix A, Optional Question 1, Gas Industry Co asks for submitters' views on including provisions for curtailment and a damages regime in the regulations.
[29] See footnote 27.

7.2 Costs: development and ongoing

As with the contracts based option, it is assumed that the cost of providing a residual balancing service would be met by system users under prescriptive regulation option B.

System modifications would be required to comply with the regulations. For example, the obligation to provide transparency of linepack GJ and dollar transactions may incur development and additional ongoing costs. However, this option would allow for the use and expansion of existing information systems which have already been developed by MDL, so development costs should be less than for prescriptive regulation option A.

System modifications required to comply with the regulations would be funded by the TSOs and those costs would be recovered through pipeline tariffs, as at present.

Ongoing costs would include the costs of performing the Balancing Agent functions, including the net results of balancing gas trading activity (including recovery of any bad debts). These costs would also be recovered through pipeline tariffs, as at present.

7.3 Disputes

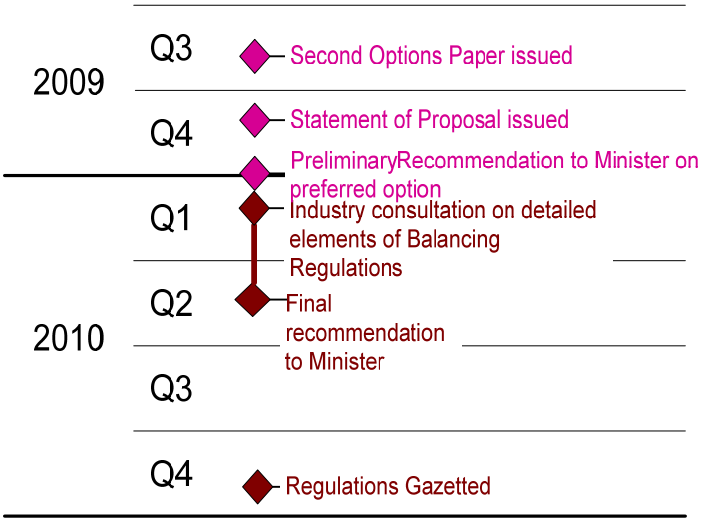
Like option A, disputes with respect to the regulations would be covered under the Gas Governance (Compliance) Regulations 2008 and therefore heard by the Rulings Panel. In order to do so, Gas Industry Co would need to make a recommendation to the Minister requesting that the Compliance Regulations are amended so that the balancing regulations could be enforced through the existing compliance regime.

The regulations would also ensure that industry codes and any other contract related to the transportation of gas on the transmission system, or the determination of quantities of gas entering and leaving the transmission system are read subject to the regulations (to the extent of any inconsistency) and that compliance with the regulations by allocation of balancing costs does not result in double jeopardy under codes.

7.4 Timetable

A possible timetable is illustrated below. Since option B does not involve setting up a new Balancing Agent, it is anticipated that progressing balancing arrangements under option B would occur slightly quicker than option A. It assumes that industry consultation on the design details would begin early next year, allowing the final recommendation to be sent to the Minister in the second quarter of 2010. The regulations would be gazetted in the last quarter of 2010. To the extent that any changes would need to occur to the MPOC and VTC as a result of regulations coming into effect, we would anticipate that any MPOC and VTC change requests necessary would be identified and progressed prior to the regulations being gazetted.

Figure 6 Timetable for prescriptive regulation option B



7.5 Conclusion

Prescriptive regulation option B has been identified as a reasonably practicable option as it would include all of Gas Industry Co's 'in scope' features of a balancing regime detailed above in section 2.2. The cementing in of MDL's Commercial Operator as the Balancing Agent under the regulations may decrease the complexity and cost of installing a 'new' Balancing Agent'. However, if adopted, this option would still require the same changes identified in prescriptive regulation option A to be made which again involves complex aspects of the balancing regime to be replicated into the regulations after the necessary amendments are made.

Q8: Do you agree that the prescriptive regulation option B identified in section 7 is reasonably practicable? If not, why?

8 Participative regulation option

In this section we set out our proposal for implementing a regime with the 'in scope' features identified in section 2.2 provided for in regulation, but giving TSOs the opportunity to develop the detail of a compliant balancing policy in consultation with the industry. Gas Industry Co would have a role in approving the balancing policy or, where the policy could not be agreed between the TSOs or were not compliant, specifying it for them.

8.1 Description

The participative regulation option involves regulations setting out the terms and conditions of a single balancing arrangement for open access pipelines. Pipeline owners and users would be bound into the arrangement. The regulations would require the TSOs, in consultation with pipeline users, to develop a single 'balancing policy' setting out the detail of how they will comply with the terms and conditions and submit it to Gas Industry Co for approval. If the TSOs cannot agree on a balancing policy, or Gas Industry Co does not approve their balancing policy, Gas Industry Co can, under the regulations, specify the policy.[30] Table 13 below contains features of the participative regulation option. These features are all changes that would need to be made to the existing regime in order to comply with the regulations. Appendix C provides an outline of the regulations required to implement the participative regulation option.

[30] The regulations would be designed so that the fallback option where Gas Industry Co determines the Balancing Policy is just as or not as attractive as the TSOs determining it themselves.

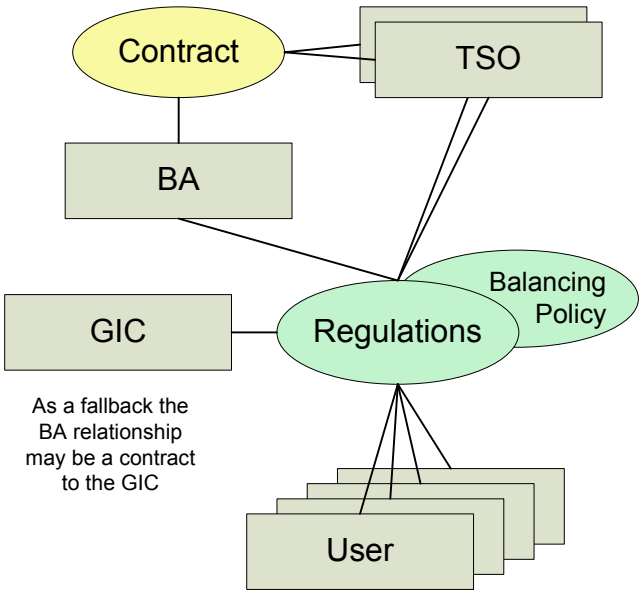
Table 13 Features of participative regulation option

Distinguishing features
Regulations would prescribe: • the full scope of Balancing Agent functions; • that the TSOs must give the Balancing Agent access to the information and systems necessary to perform its functions; • that the TSOs must provide the Balancing Agent with thresholds for taking balancing actions; • the parameters for balancing, within which TSOs are required to formulate a more detailed balancing policy; • where TSOs fail to agree on a balancing policy, it will be determined by Gas Industry Co; • the Balancing Agent appointment process; and • that the Balancing Agent function is funded by a component of transmission fees.
Key features (in common with other options)
Participative regulation option would: • require users to use reasonable endeavours to maintain balanced positions; • require a single balancing regime; • describe the functions of the Balancing Agent; • require the Balancing Agent to manage aggregate residual imbalance and allocate cost to causers; and • require the Balancing Agent to use an open and efficient balancing market.
Other features (in common with other options)
Participative regulation option would also: • provide a damages regime;[31] • describe a mechanism for curtailment;[32] • maximise tolerances while minimising socialised costs (no greater than inherent pipeline flexibility); • clarify the management of base linepack, TSO own-use gas and UFG; • ensure balancing gas is competitively priced (reflecting the marginal cost of supply and demand); • describe the mechanism for buying and selling balancing gas; and • describe the mechanism for allocating the title and cost of balancing gas to pipeline users that is back-to-back with balancing gas title and cost.

Figure 7 below depicts the balancing relationships between Gas Industry Co, the Balancing Agent (BA), TSOs and users for the participative regulation option.

[31] Note that this feature is still under review. In Appendix A, Optional Question 1, Gas Industry Co asks for submitters' views on including provisions for curtailment and a damages regime in the regulations.
[32] See footnote 30.

Figure 7 Relationships for participative regulation option



8.2 Design of regulations

The regulations will be designed to achieve a single balancing regime for open access pipelines with all components identified as necessary to improve balancing arrangements, while allowing TSOs some flexibility in the detail through the use of a balancing policy. The approval process of the balancing policy means that Gas Industry Co will have the final say as to whether or not the policy sufficiently satisfies our regulatory objective and meets the objectives in the Gas Act and GPS as reflected in criteria in the regulations. If the policy does not, in Gas Industry Co's opinion comply, the regulations will allow for Gas Industry Co to develop the policy. The balancing policy and its contents are discussed below.

The balancing policy

The regulations will contain the parameters within which the TSOs detailed balancing policy will be required to be formulated. The policy will include details that:

- provides transparency on the operation of the balancing regime;
- identify who the Balancing Agent is and what its remuneration arrangements are;
- specify the upper and lower linepack limits, for each balancing zone, within which the Balancing Agent must manage linepack;
- specify any tolerances provided to users;

- clarifies the TSO management of base linepack, own-use gas and UFG;
- describes the mechanism for buying and selling balancing gas;
- describes the mechanism for allocating the title and cost of balancing gas to pipeline users that is back-to-back with balancing gas title and cost; and
- describes the use of curtailment.

Process for establishing and modifying the balancing policy

The regulations will also contain detailed processes for the establishment and modification of the balancing policy. These processes are presented in Figure 8 and Figure 9 below.

The principles underlying the proposed processes are:

- stakeholders likely to be substantially affected should be consulted on the draft balancing policy, whether developed by pipeline owners or Gas Industry Co;
- when pipeline owners consult with stakeholders on their draft balancing policy, they must make the submissions available to Gas Industry Co;
- where Gas Industry Co identifies issues with the balancing policy pipeline owners have submitted to it, which it deems to be 'substantive' it will consult on them before approving the balancing policy or returning it to the pipeline owners with suggested modifications; and
- where pipeline owners cannot agree on a draft balancing policy, or on a final balancing policy which Gas Industry Co believes will meet the criteria set out in the regulations, Gas Industry Co will develop the balancing policy.

Under this process, consultation may occur:

- once, if pipeline owners submit a final balancing policy with no substantive issues;
- once, if pipeline owners fail to agree a draft balancing policy and Gas Industry Co develops it instead;
- at least twice, if pipeline owners submit a final balancing policy with outstanding issues; and

- twice, if pipeline owners fail to agree a final balancing policy and so Gas Industry Co has to draft a balancing policy.

The proposed balancing policy change process follows similar principles.

Figure 8 Process for establishing a balancing policy

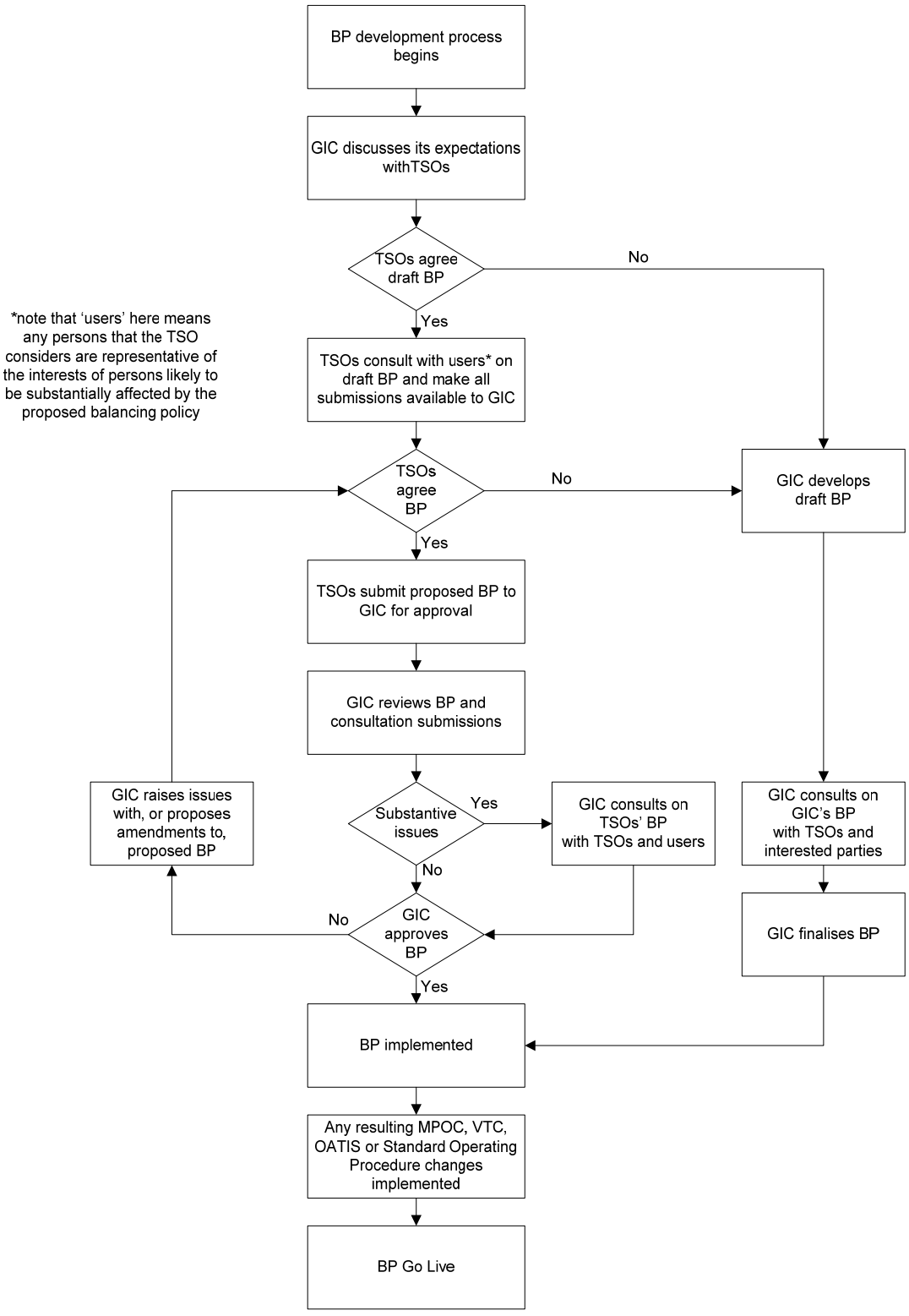
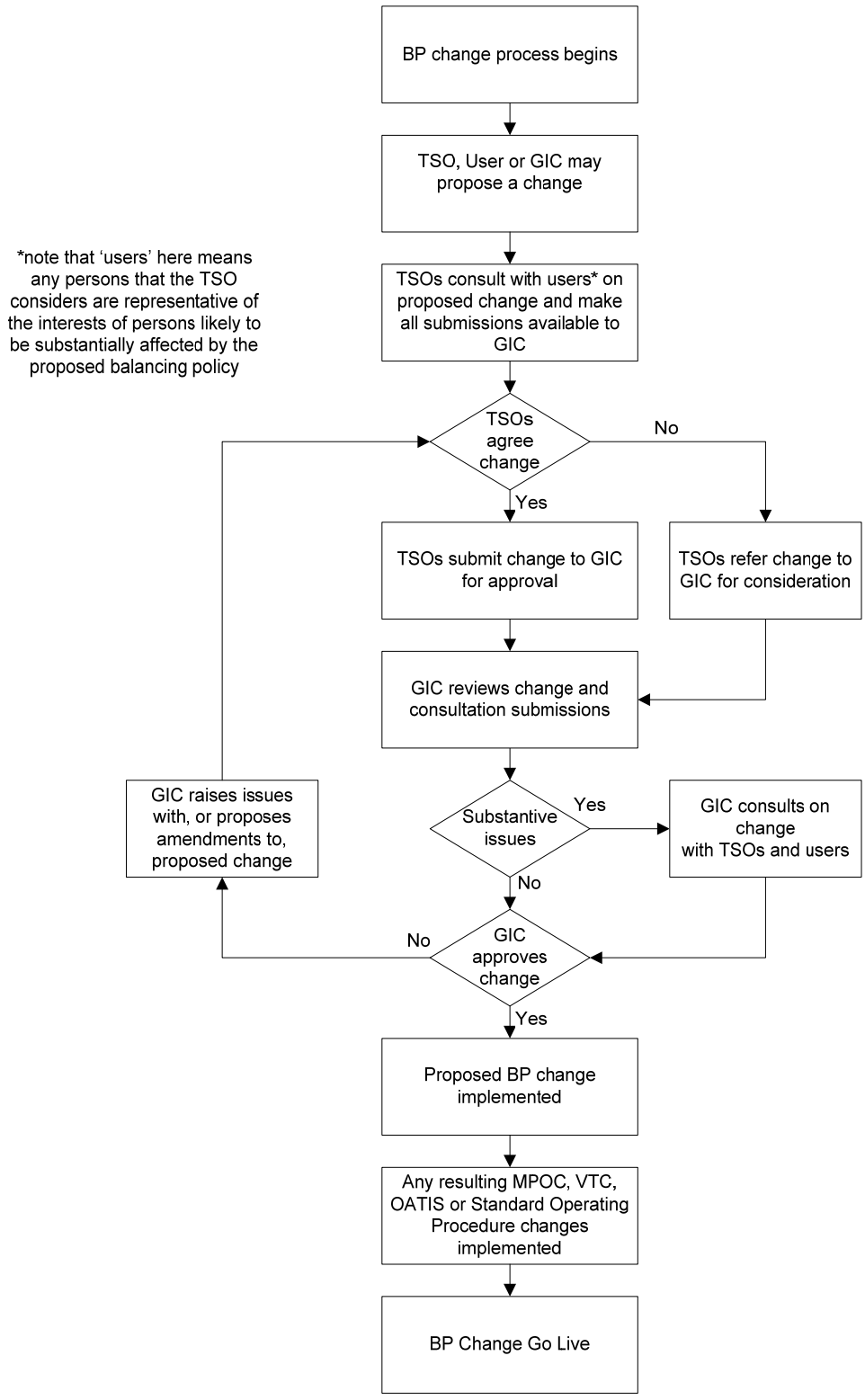


Figure 9 Process for modifying a balancing policy



8.3 Costs: development and ongoing

Cost recovery mechanisms for the development and ongoing costs of the Balancing Agent would be detailed in the regulations.

Under the participative regulation option, there are two broad possibilities; Gas Industry Co could approve a TSO developed balancing policy, or Gas Industry Co could develop the balancing policy.

Where Gas Industry Co develops the balancing policy, the outcome would be very similar to prescriptive regulation option B.

Where Gas Industry Co approves a TSO developed balancing policy, the outcome could also be similar to prescriptive option B, but it is more likely that the changes would be more extensive. For example, if the TSOs were to propose a solution akin to the regime Vector described in its submission on the Options Paper, additional OATIS costs would be involved.

In either case, it is expected that system modification costs would be funded by the TSOs and recovered through pipeline tariffs. Ongoing costs would include the costs of performing the Balancing Agent functions, including the net results of balancing gas trading activity (including recovery of any bad debts). These costs would also be recovered through pipeline tariffs, as at present.[33]

8.4 Disputes

Disputes with respect to the regulations would be covered under the Gas Governance (Compliance) Regulations 2008 and therefore heard by the Rulings Panel. In order to do so, Gas Industry Co would need to make a recommendation to the Minister requesting that the Compliance Regulations are amended so that the balancing regulations could be enforced through the existing compliance regime.

The regulations would also ensure that industry codes and any other contract related to the transportation of gas on the transmission system, or the determination of quantities of gas entering and leaving the transmission system are read subject to the regulations (to the extent of any inconsistency) and that compliance with the regulations by allocation of balancing costs does not result in double jeopardy under codes.

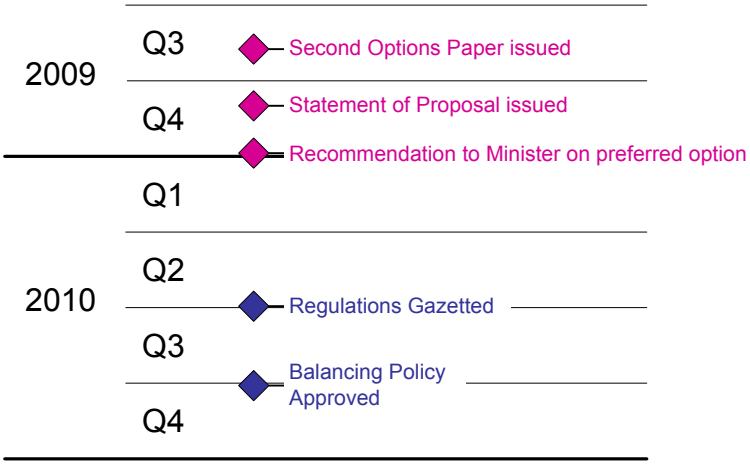
8.5 Timetable

A possible timetable is illustrated below. It assumes that the regulations would be gazetted mid-2010. It is possible that, as soon as this option was recommended to the Minister, TSOs could develop and consult on their balancing policy, so the balancing policy could be available for Gas Industry Co to

[33] It is important to note that the costs that can be recovered by the TSOs will be restricted in the regulations. In the case where a balancing policy is developed by Gas Industry Co, the possibility of having Gas Industry Co recover the costs of the Balancing Agent function, as in prescriptive regulation option A, was assessed. However, we did not want funding to be a factor when the TSOs considered the benefits of agreeing a balancing policy (as compared to Gas Industry Co developing the policy).

approve as soon as the regulations come into effect. However, the timeline assumes there would be outstanding issues to resolve in relation to the policy, and that full implementation would not occur until the fourth quarter of 2010. It is also assumed that some design would be undertaken after the recommendation is made to the Minister. We anticipate that MPOC and VTC change requests would be identified and progressed prior to the regulations being gazetted

Figure 10 Timetable for participative regulation option



8.6 Conclusion

The participative regulation option has been identified as a reasonably practicable option as it ensures the changes necessary to improve balancing arrangements take place, while offering some flexibility to the TSOs through the use of a balancing policy.

Q9:	Do you agree that the participative regulation option identified in section 8 is reasonably practicable? If not, why?
Q10:	Do you consider that the outline of the participative regulations in Appendix C are appropriate? If not, why?

9 Evaluation of options

In this section we evaluate the options against the evaluation criteria established earlier in section 3.

9.1 Outline of evaluation approach

Each of the options presented above is evaluated against the set of evaluation criteria for balancing arrangements established in section 3.

Each option is evaluated against each criterion and assigned a numerical score representing its anticipated performance against this criterion: from 1=poor up to 5=excellent.

The scores are then combined using an averaging process which is described further in section 9.5, the combined evaluation.

9.2 Evaluation against efficiency objectives

Referring back to Table 9 on page 32 we see that the regulated options are identical[34] in their inclusion of all of these features. So, at this level, the efficiency of the prescriptive regulation options A and B, and participative regulation option is indistinguishable.

On the other hand, it is unclear whether the contracts based option will include these features. At best, the contracts based option will include all of the features and be equally efficient. If, on the other hand, some features are not included, the contracts based option will be less efficient.

However, some useful distinctions can be made between the options as discussed below.

Productive efficiency

There is no reason to believe that the regulated options will have different outcomes in terms of encouraging participation in the balancing gas market, determining when balancing gas should be purchased, or requiring that it be purchased from the cheapest source. All these matters would be addressed in regulation.

[34] There is a slight difference in 'who determines tolerances' and 'threshold for balancing actions' but it is anticipated that these will lead to similar outcomes under all options.

The prescriptive regulation options are designed to be low cost (see section 9.3 below). It seems reasonable to assume that different (and so higher cost) detailed features would only be included in the balancing policy (under the participative regulation option) if these were likely to provide better efficiency than the prescriptive regulation options. On this assumption, it is unlikely that efficiency under the participative regulation option will be lower than under the prescriptive regulation options.

However, it would be expected that the TSOs would be more liberal in their allocation of linepack to balancing flexibility under the contracts based and participative options because the allocations would be more readily adjusted if circumstances changed.

Table 14 Ratings for productive efficiency criteria

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Encourages participation and competition in balancing gas	Unknown	Yes	Yes	Yes
Balancing gas only purchased when necessary	Unknown	Yes	Yes	Yes
Balancing gas purchased from cheapest source	Unknown	Yes	Yes	Yes
Maximum use of linepack flexibility	Ease of changing tolerance policy may make TSOs less conservative	TSOs likely to make conservative allocation of balancing flexibility	TSOs likely to make conservative allocation of balancing flexibility	Ease of changing Balancing Policy parameters may make TSOs less conservative
Overall rating (1-5)	1-4	3	3	3-4

Allocative efficiency

All regulatory options will require the Balancing Agent to procure balancing services from a competitive market, and to apply back-to-back allocation. There is therefore no reason to believe that the regulated options will have different outcomes in terms of these matters.

However, the flexibility of the participative regulation option would allow for more innovative approaches which could improve allocative efficiency. For example, if the TSOs could agree to adopt changes such as virtual welded points or downstream nominations that might reduce barriers to participation in the balancing market, such as by improving verification.

Table 15 Ratings for allocative efficiency criteria

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Common price paid for all equivalent gas	Unknown	Yes	Yes	Yes
Prices reflected through to users	Unknown	Yes	Yes	Yes
Flexibility to offer balancing gas or not	Unknown	Yes	Yes	Balancing Policy may allow wider participation in balancing market
Overall rating (1-5)	1-4	3	3	3-5

Security of Supply

Gas Industry Co considers that the flexibility provided to TSOs under the participative regulation option, and the consultative process involved in establishing the balancing policy, should be particularly helpful in setting appropriate thresholds for balancing actions. While the contract based and prescriptive options are likely to take a simplistic and conservative approach to setting the thresholds, the participative option allows for a more nuanced approach which can be more readily modified over time.

Table 16 Ratings for security of supply criteria

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Thresholds set to provide optimal security	Unknown	Yes	Yes	Balancing policy provides scope for TSOs
Minimise number of excursions outside thresholds	Unknown	Yes	Yes	Balancing policy provides scope for TSOs
Overall rating (1-5)	1-4	3	3	2-5

User risks

The 'better forecasting' and 'timely imbalance information' components of the user risk criteria are out of scope and have not been assessed. This does not mean that these matters are unimportant to Gas Industry Co. Only that they are not within the scope of this Second Options Paper.

In relation to the openness of the balancing market, Gas Industry Co believes that the participative regulation option may allow for arrangements which allow for wider participation.

Table 17 Ratings for user risks criteria

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Better forecasting	Out of scope	Out of scope	Out of scope	Out of scope
Openness of balancing market	Unknown	Yes	Yes	Balancing Policy may allow wider participation in balancing market
Socialisation of costs	Unknown	Low	Low	Low
Ability to hedge price	Unknown	Yes	Yes	Yes
Timely imbalance information	Out of scope	Out of scope	Out of scope	Out of scope
Overall rating (1-5)	1-4	3	3	3-4

9.3 Evaluation against cost objectives

Cost of Agreement

Each option follows an identical path up to the point of recommendation to the Minister on Gas Industry Co's preferred option, so only costs incurred subsequently need to be considered.

To assess costs of agreement, we can first consider what aspects of the balancing arrangements must be agreed. Table 18, below, considers the three levels of agreement required.

Under the contracts based option, agreement is needed at all three levels, for the participative regulation option at two levels and for the prescriptive regulation options just at the detailed level.

Table 18 What needs to be agreed

	Contracts based option	Prescriptive regulation option A	Participative regulation option B	Participative regulation option
Which features to include in balancing arrangements	✓			
Policy for implementing features	✓			✓
Detailed implementation of policy	✓	✓	✓	✓

On this basis, the costs of agreement will be highest for the contracts based option, lower for the participative regulation option and lowest for the prescriptive regulation options. Although the incidence of costs in not a consideration of this global analysis, it should be noted that the incidence of those costs will be different for each option. For example, it is likely that the contracts based option would require broader and more intensive industry participation.

The other aspect of cost is how long agreement will take. It is estimated that agreement is reached:

- For the contracts based option: 2010 Q4
- For the prescriptive regulation options (A&B): 2011 Q1
- For the participative regulation option: 2010 Q3

The longer it takes to reach agreement, the longer the current – suboptimal – arrangements will continue. Therefore, there is an indirect cost that is in proportion to the time for agreement.

These two aspects of costs are summarised in Table 19 below.

Table 19 Ratings for cost of agreement

	Contracts based option	Prescriptive regulation option A	Participative regulation option B	Participative regulation option
Costs driven by scope of agreement	Moderate	Low	Low	Low to Moderate
Costs driven by time to reach agreement	Low to Moderate	Moderate	Moderate	Low
Overall rating	3	4	4	5

Note that cost ratings are inverse to cost. So, a high cost option will have a rating of 1 or 2 and a low cost option a rating of 4 or 5. Ratings for cost of agreement are fairly high as they are expected to be moderate in comparison to implementation and operations costs.

Cost of Implementation

The costs of implementation will primarily be driven by:

- mechanism changes: changes to allocation and reporting of balancing gas prices allocations which may result in changes to OATIS;

- organisational changes: changes to balancing roles, responsibilities, and business processes which will influence both (non-OATIS) IT costs and non-IT costs.

In each case, the cost will be in proportion to the degree of change from the status quo.

The prescriptive regulation options are designed to require the minimal change to the mechanics of the balancing arrangements that is sufficient, in Gas Industry Co's view, to allow them to achieve the Gas Act and GPS objectives as well as our regulatory objective. However, prescriptive regulation option A may involve appointing an existing operator or setting up a new Balancing Agent with new premises, staff, IT and so on.

Even fewer changes might be agreed to under the contracts based option, but in this case it seems likely that Gas Industry Co would find this option unacceptable and so would require further changes to be made. So, at best, some implementation costs would be deferred by two years. Conversely, the industry may decide – under the contracts based option – to implement all of Gas Industry Co's proposed changes, or more extensive changes. Changes may also emerge from unilateral actions such as Vector terminating its interconnection contract with MDL.

Under the participative regulation option, any changes will be at least as substantive as under the prescriptive regulation option B and potentially as much as prescriptive regulation option A.

Implementation costs are summarised in Table 20 below.

Table 20: Ratings for implementation cost

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Mechanism changes (driving OATIS costs)	No lower than prescriptive option B and potentially substantial	Minimal changes	Minimal changes	No lower than prescriptive option B and potentially substantial
Organisational changes (driving non-OATIS IT costs)	Likely minimal	Minimal if existing service provider, otherwise high	Minimal changes	Mimimal if existing service provider, otherwise high
Likely IT costs	Low to Moderate	Low to High	Low	Low to Moderate
Organisational changes (driving re-organisation costs)	Likely minimal	Mimimal if existing service provider, otherwise high	Minimal changes	Mimimal if existing service provider, otherwise high
Likely non-IT re-organisation costs	Low	Low to High	Moderate	Moderate
Overall rating (1-5)	3-4	1-4	3	1-3

Cost of operation

The cost of operation is likely to be driven by two factors:

- the complexity of the balancing arrangements; and
- the extent to which balancing must be carried out separately from related pipeline functions such as transportation.

The prescriptive regulation options lock in some of the current arrangements (with identified targeted amendments), where there are different ways of allocating tolerances and balancing costs in the MDL and Vector zones.

Under the other options, it might be decided to simplify the arrangements: eg by having a single method of allocation. It seems unlikely that further complexity would be introduced, although this cannot be ruled out.

It seems unlikely that a contracts based option would result in functional or structural separation of the balancing function. All other options involve functional separation and may, in the case of prescriptive regulation option A, result in structural separation.

In summary:

Table 21: Ratings for operational cost

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Complexity of balancing mechanisms	Likely to be simpler than prescriptive	Complex	Complex	Likely to be simpler than prescriptive
Organisational separation of balancing & transport	No restriction	Functionally separated if existing service provider, otherwise structurally separated	Functionally separated	Functionally separated
Overall rating (1-5)	4-5	1-3	2-3	2-4

9.4 Evaluation against governance objectives

Transparency

Transparency and non-discrimination is sought on both the design and the operation of the balancing arrangements.

Regarding operation under the contracts based option, while TSOs and users may agree improved transparency arrangements, this seems fairly unlikely. The regulated options require higher degrees of transparency. This will be supported by functional or structural separation.

Regarding design, the regulated options include non-discrimination provisions in relation to procurement of balancing gas. The contracts based option places no requirements in this area.

Table 22: Ratings for transparency

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Transparency of operation	No requirements, likely to continue to be poor	High level of transparency given structural separation	Moderate transparency but no structural separation	Moderate transparency but no structural separation
Transparency of design	Unclear	Locks in existing design	Locks in existing design	Transparency of procurement
Overall rating (1-5)	1-2	3-5	3	3

Adaptability

Processes for future modification of balancing arrangements are summarised in the table below. Note that under the contracts based option, there may need to be parallel changes to the VTC and MDL, which have different change processes.

Table 23: Ratings for adaptability

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
How changes are implemented	Code changes	New regulations	New regulations	Changes to the balancing policy
How changes are developed	TSO negotiation	Gas Industry Co proposals	Gas Industry Co proposals	TSO consultations
How deadlock is broken	Referral to Gas Industry Co	Not applicable	Not applicable	Gas Industry Co draft changes
Overall rating (1-5)	1-3	1	1	4

Enforcement

The regulated options are each enforced through regulations and there is a single, streamlined dispute resolution process.[35]

Enforcement under the contracts based option is likely to be as now and this has proven to be ineffective.

Table 24: Ratings for enforcement

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Enforcement	As now	Through regulations	Through regulations	Through regulations
Dispute resolution	As now	Single, streamlined dispute resolution process	Single, streamlined dispute resolution process	Single, streamlined dispute resolution process
Overall rating (1-5)	2	5	5	5

[35] Disputes with respect to the regulations would be covered under the Gas Governance (Compliance) Regulations 2008 and therefore heard by the rulings panel. In order to do so, Gas Industry Co would need to make a recommendation to the Minister requesting that the Compliance Regulations are amended so that the balancing regulations could be enforced through the existing compliance regime.

Balance

The prescriptive regulation options lock in the current arrangements – with targeted changes. To the extent that these arrangements do not reasonably balance the interests of stakeholders, there is no 're-balancing', except as a result of the minimal changes.

On the other hand, the participative regulation option provides a process for developing and agreeing a balancing policy which carefully balances the interests of all stakeholders: for example, by allowing Gas Industry Co to raise and consult on an issue for an individual stakeholder that may have been ignored or not adequately considered by TSOs.

The contracts based option continues with the existing arrangement, where the balance tends to be in favour of TSOs and of larger users who have the resources to devote to code change consultations.

Table 25: Ratings for balance

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Areas of instability	Favours TSOs and 'large players'	Locks in current arrangements	Locks in current arrangements	Policy development process designed to ensure balance
Overall rating (1-5)	1	3	3	5

Stability

The participative regulation option provides a framework under which balancing arrangements can continue to evolve driven by stakeholders and with minimal intervention by Gas Industry Co (ie only to break deadlock or to pick up issues not adequately addressed by TSOs).

The prescriptive regulation option locks in arrangements through regulation and would require new regulations to make changes to these arrangements. Prescriptive regulation option A also gives Gas Industry Co a continuing role in directly governing the Balancing Agent.

The contracts based option gives Gas Industry Co a facilitation role only in the short-term. However, there is a threat of future Gas Industry Co intervention in 2011 should Gas Industry Co find the contractual arrangements to be unsatisfactory.

Table 26: Ratings for stability

	Contracts based option	Prescriptive regulation option A	Prescriptive regulation option B	Participative regulation option
Areas of instability	Potential future Gas Industry Co intervention	New regulations and Gas Industry Co governance of Balancing Agent	New regulations	Gas Industry Co breaking of deadlock on outstanding issues on balancing policy
Overall rating (1-5)	2	3	3	4

9.5 Combined Evaluation

Approach to Combining Rankings

Ratings for each criterion with a category are averaged to give a category rating for each option. The category ratings are then averaged to give an overall rating.

Because a ratings range – rather than a specific rating – has been awarded in many cases, averages for the 'low end' and 'high end' are calculated separately. This leads to corresponding ranges for the category and overall ratings.

The relative importance of the different criteria and categories can – in principle - be reflected by using different weightings in the averaging process. However, the base case results are provided below based on an unweighted approach.

Overall Results

The results are presented in Table 27. It illustrates the base case analysis presented in the table, and three sensitivity cases shown below the table in Table 28. The first sensitivity case shows how the results would change if efficiency is given a weight of five times that of cost and governance. The second and third sensitivity cases are similar, but put the five times weighting on cost and governance respectively.

The highest scores are obtained from the participative regulation option, particularly when governance outcomes are given a high weighting.

The contracts based and participative options show the widest range of results, particularly when efficiency outcomes are given a high weighting. However, participative regulation option A also shows a very wide range where cost is weighted highly. This reflects the potentially wide range of outcomes depending on whether Gas Industry Co appoints an existing service provider or another party as the Balancing Agent.

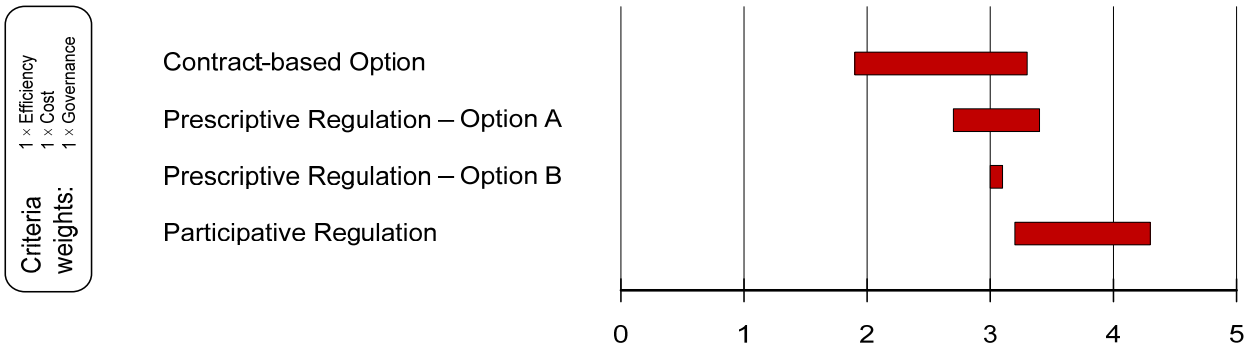
The participative regulation option rates best on governance, reflecting its ability to establish improved enforcement and transparency without sacrificing adaptability and stability. It also rates best on 'balance'. The contracts based option rates worst on transparency, reflecting a probability that existing concerns about transparency, enforcement and balance will not be addressed. Prescriptive regulation option A rates slightly lower than option B, reflecting a concern that the loss of 'stability' will more than offset the gain in transparency.

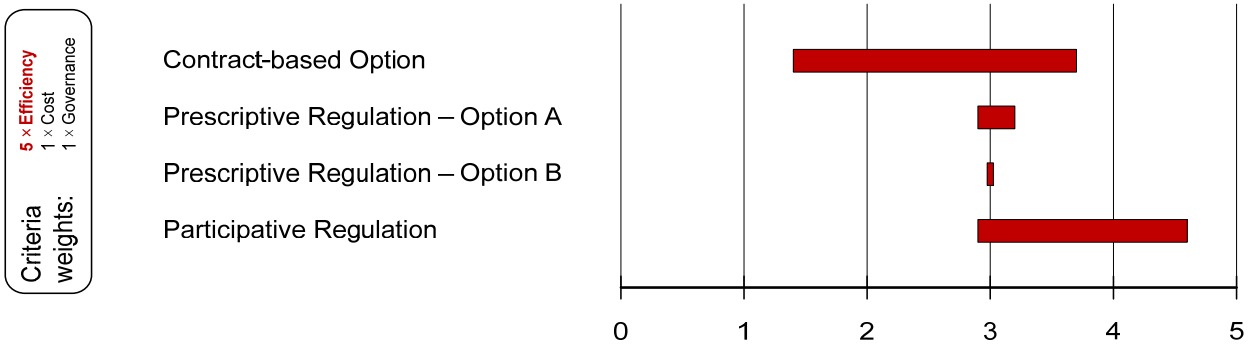
Overall the participative regulation option rates best, although there is a minor overlap between its rating range and the ranges for the contracts based and prescriptive B options. There is more potential 'upside' to the participative regulation option, reflecting the potential for the TSOs to develop a balancing policy with greater efficiency than the prescribed mechanism.

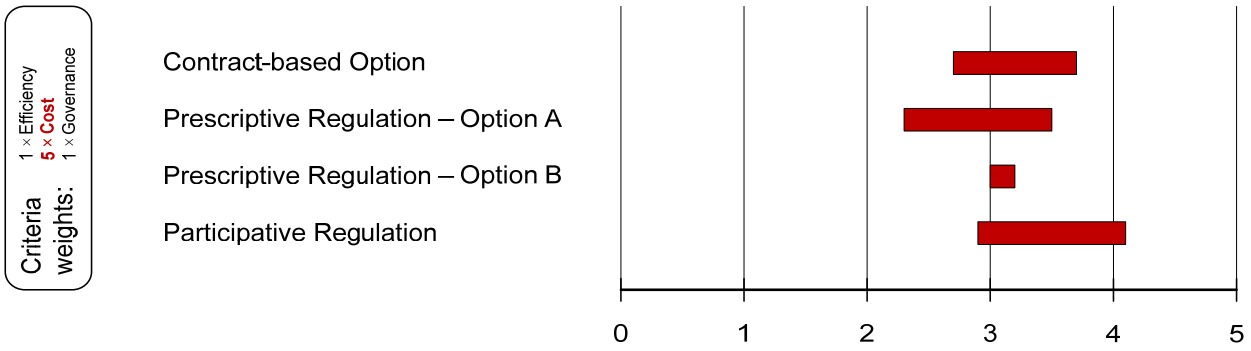
Table 27: Overall results

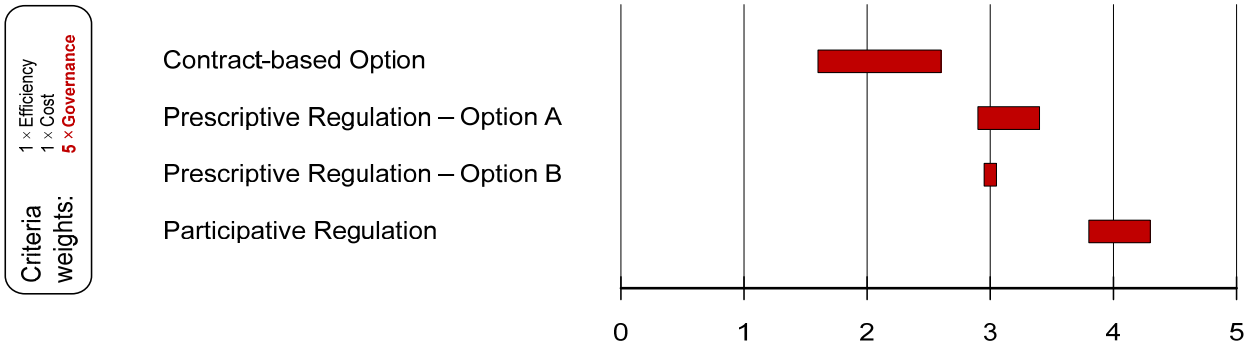
	Contracts based option		Prescriptive regulation option A		Prescriptive regulation option B		Participative regulation option	
	From	To	From	To	From	To	From	To
Productive efficiency	1	4	3	3	3	3	3	4
Allocative efficiency	1	4	3	3	3	3	3	5
Security of supply	1	4	3	3	3	3	2	5
Manageable risks	1	4	3	3	3	3	3	5
Costs of agreement	3	3	4	4	4	4	5	5
Costs of implementation	3	4	1	4	3	3	1	3
Costs of operation	4	5	1	3	2	3	2	4
Transparency	1	2	3	5	3	3	3	3
Adaptability	1	3	1	1	1	1	4	4
Enforcement and disputes resolution	2	2	5	5	5	5	5	5
Balance	1	1	3	3	3	3	5	5
Stability	2	2	3	3	3	3	4	4
Efficiency	1.0	4.0	3.0	3.0	3.0	3.0	2.8	4.8
Cost	3.3	4.0	2.0	3.7	3.0	3.3	2.7	4.0
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

Table 28 Sensitivity analysis









9.6 Conclusion

Given its overall superior rating and a strongly superior governance rating, Gas Industry Co prefers the participative regulation option.

Q11:	Do you agree with Gas Industry Co's approach to evaluating the options identified as reasonably practicable in section 9? If not, why?
Q12:	Do you consider Gas Industry Co's assessment of the options presented is fair and reasonable? If not, why?
Q13:	Do you agree that Gas Industry Co has, through the evaluation of options, correctly identified the participative regulation option as its preferred option? If not, why?

10 Conclusion

The transmission pipeline balancing work stream has been a significant piece of work- from when problems were first canvassed in the Transmission Access Issues Paper in May 2006 to this Second Options Paper in July 2009. As industry participants are well aware, there is no 'magic bullet' solution to resolving all of the issues that relate to pipeline balancing. Gas Industry Co considers that the best approach is a targeted one. Based on current information it is our preliminary view that the options presented in this paper are all reasonably practicable in that they could, to varying degrees, fulfil the overarching regulatory objective to:

To provide an efficient, single balancing arrangement for managing pipeline imbalance.

As well as meet the objectives found in the Gas Act and GPS.

The evaluation criteria outlined in section 3 allowed Gas Industry Co to assess each of the options against three main criteria: efficiency, cost and governance which were established to meet our objectives. Section 9 involved a detailed evaluation of the criteria against each of the options. Through this process, Gas Industry Co has identified its preferred option, the participative option.

As part of this process, we welcome stakeholder feedback on the options presented here, as well as on our analysis and evaluation that led us to identify the participative regulation option as our preferred choice.

11 Next steps

Submissions on the Second Options Paper are due by 5pm on Monday, 17 August 2009. For more information on how to lodge a submission, please refer to section 1.7 of this paper, 'Submissions requirements'. Gas Industry Co will be holding an industry workshop on 29 July 2009 to present the options in this paper and help answer any questions participants may have.

Prior to making a recommendation to the Minister, Gas Industry Co will release a Statement of Proposal containing a summary of submissions as well as our analysis and conclusions on 1 October 2009. We will invite submissions on the Statement of Proposal, with a closing date of 30 October 2009.

An analysis of submissions on the Statement Proposal and Recommendation to the Minister will be released on 21 December 2009. We encourage you to keep to this timetable so we can make a formal recommendation to the Minister before the end of the calendar year.

A timeline for conducting and reviewing this work is set out in Table 29 below.

Table 29 Timetable for pipeline balancing arrangements

Item	Date
Issue Second Options Paper	17 July 2009
Second Options Paper Workshop	29 July 2009
Closing date for submissions on Second Options Paper	17 August 2009
Issue Second Options Paper Analysis of Submissions and Statement of Proposal	1 October 2009
Closing date for submissions on Statement of Proposal	30 October 2009
Issue Analysis of Submissions on Statement of Proposal and Recommendation to Minister	21 December 2009

Q14: Do you agree with the next steps identified in section 11? If not, why?

Appendix A Format for submissions

To assist Gas Industry Co in the orderly consideration of stakeholders' responses, a suggested format for submissions has been prepared. This is drawn from the questions posed throughout the body of this consultation document. This Appendix also includes five optional questions in relation to the outlines of regulations in Appendix B and C participants are invited to respond to.

Respondents are also free to include other material in their responses.

QUESTION	COMMENT
Q1: Do you consider that the objective identified in section 2 is appropriate? If not, what other objective(s) would you propose?	
Q2: Do you agree that the scope of the proposed regulatory options for this paper identified in section 2.2 is reasonable? Are there any items that should be considered in the scope that Gas Industry Co has not identified? Alternatively, are there any items in the scope that Gas Industry Co has included that should not be included?	
Q3: Do you consider that the evaluation criteria set out in section 3 are appropriate for evaluating options for pipeline balancing arrangements? If not, why?	

QUESTION	COMMENT
Q4: Do you consider that Gas Industry Co has correctly identified the need to consider the alternative options based on our conclusions from the consultation process outlined in section 4?	
Q5: Do you agree that the contracts based option identified in section 5 is reasonably practicable? If not, why?	
Q6: Do you agree that the prescriptive regulation option A identified in section 6 is reasonably practicable? If not, why?	
Q7: Do consider that the outline of the prescriptive regulations in Appendix B is appropriate? If not, why?	
Q8: Do you agree that the prescriptive regulation option B identified in section 7 is reasonably practicable? If not, why?	
Q9: Do you agree that the participative regulation option identified in section 8 is reasonably practicable? If not, why?	
Q10: Do you consider that the outline of the participative regulations in Appendix C are appropriate? If not, why?	

QUESTION	COMMENT
Q11: Do you agree with Gas Industry Co's approach to evaluating the options identified as reasonably practicable in section 9? If not, why?	
Q12: Do you consider Gas Industry Co's assessment of the options presented is fair and reasonable? If not, why?	
Q13: Do you agree that Gas Industry Co has, through the evaluation of options, correctly identified the participative regulation option as its preferred option? If not, why?	
Q14: Do you agree with the next steps identified in section 11? If not, why?	

Optional questions	Comment
Appendix B: Outline of prescriptive regulations **OQ1**: Gas Industry Co is still considering whether the scope of the regulations for prescriptive regulation options A and B should include provisions for curtailment and damages. They are currently drafted in the outline for prescriptive regulation option A. However, Gas Industry Co seeks submitters' views on whether provisions for curtailment and a damages[36] regime should be included in the regulations or left to industry agreement and codes.	
OQ2: If the scope of the regulations includes damage claims, the quantum of these can be determined through the dispute resolution process (by the Rulings Panel) or predetermined as 'liquidated damages'. Do you consider that the quantum of damages should be liquidated or are better determined by the Rulings Panel at the time of the claim?	

[36] Where there is insufficient balancing gas available then the Balancing Agent could curtail users prior to a critical contingency being called, in order to endeavour to prevent a critical contingency. In this situation a well behaved user that is curtailed will want to claim for damages from the causers of the imbalance that lead to curtailment. Therefore curtailment and damage claims go together.

Optional questions	Comment
OQ3: In schedule 2, base linepack and thresholds, Gas Industry Co has not yet determined a process for setting and revising this table. Do you have a view as to how this might be best achieved under the regulations?	
Appendix C: Outline of participative regulations **OQ4**: A design issue is how to define flexible linepack available to the Balancing Agent and ensure that this is a fair share of the flexibility available. In proposed regulation 5.f. Gas Industry Co has drafted it to be set as 'wide as practical' with any dispute to go to the dispute resolution process. An alternative would be to establish a special purpose process for establishing the flexible linepack. Do you agree with the current drafting, or would the alternative to create a special purpose process be more appropriate?	
OQ5: The outline of regulations has been drafted to include tolerances. Do you consider tolerances should be included?	

Appendix B Outline of regulations required to implement the prescriptive regulation option A

This outline is provided for discussion and feedback. Detailed work will be required if prescriptive regulation option A is to be further developed. Alternatively, if prescriptive regulation option B is adopted, the regulations will need to be amended to allow for the MDL Commercial Operator to assume the role as Balancing Agent. The final form of any regulations will depend on further development in light of submissions, legal advice, drafting and feedback from governmental authorities.

1. **Purpose** To define a single arrangement for managing pipeline imbalance.

2. **Application** Applies to Transmission Systems. Compulsory participation if owning, operating, managing, using or interconnected to a Transmission System.

3. **Interpretation**

    a. Balance means:

        i. in relation to a shipper, to maintain matching quantities of receipts and deliveries of gas allocated to the shipper;

        ii. in relation to a trader, to maintain matching quantities between gas purchased and gas sold;

        iii. in relation to an interconnected party, to take or inject the same quantity of gas from or into the Transmission System as agreed between the TSO and the interconnected party or otherwise expected or scheduled to pass through each interconnection point;

        iv. in relation to the TSO, to match the TSO Own Use gas with an equal and opposite quantity of gas injected or taken from the Transmission System; and

        v. in relation to any other person, to match receipts and deliveries of gas.

b. Balancing Action means one or more transactions to buy or sell Balancing Gas committed by the Balancing Agent at the same time for the same event.

c. Balancing Agent means the person appointed under section 6.

d. Balancing Gas means gas added to or removed from a pipeline as part of the Balancing Agent's function of managing Linepack.

e. Balancing Market means a market created by the Balancing Agent when sourcing or disposing of balancing gas.

f. Balancing Zone means a part of the Transmission System as defined in section 16.

g. Base Linepack means the Linepack when aggregate Imbalance is zero.

h. Communications Plan means the plan in section 11.i.

i. Curtailment means an instruction to reduce gas flow rate from that which is scheduled due to Imbalance or contingent events, as prescribed in the Balancing Policy, and does not include any curtailment due to capacity limits when scheduling gas flow.

j. Imbalance means the quantity of gas not in Balance, as accumulated over time.

k. Industry Body means the industry body appointed under the Gas Act.

l. Linepack means the quantity of gas in a pipeline.

m. Transmission System means the natural gas transmission pipelines as identified in section 16.

n. Transmission System Owner or TSO means a party that owns part of the Transmission System.

o. TSO Own Use gas means all gas supply or consumption not provided for in a contract between a TSO and a third party, and may include gas used by the TSO in compressors and line heaters, losses, provision or adjustment of Base Linepack and unaccounted for gas.

p. User means a party that has entered into a contract with a TSO relating to the flow, transport or trading of gas or may otherwise affect the linepack of the Transmission System, and includes a shipper, trader, interconnected party and TSO in relation to TSO Own Use gas, and excludes the Balancing Agent in relation to performance of its functions.

4. **Obligation on Users**

a. Users must use reasonable endeavours to Balance within each Balancing Zone.

b. If a User fails to Balance within a Balancing Zone:

i. the entitlement of the User to gas is subject to adjustment by the Balancing Agent; and

ii. the User is liable to pay for the costs of any Balancing Gas purchased, or receive proceeds for any Balancing Gas sold, by Balancing Agent and allocated to the User under these regulations (section 11.f);

c. Users must provide necessary information to the Balancing Agent to carry out its functions under these regulations. [*Insert details – else delete if no information is identified.*]

d. Users must provide one of the following prudential requirements to the Balancing Agent:

i. credit rating of [*to be determined*];

ii. cash bond; or

iii. unconditional payment guarantee, letter of credit or security bond from a third party with the above credit rating,

e. to the amount determined by the Industry Body, as may be reviewed and published from time to time.

5. **Obligation on TSOs**

a. Each TSO must co-operate with and facilitate the Balancing Agent in the performance of the Balancing Agent functions with a view to minimising the cost of Balancing Actions (eg operation of compressors, adjustment of Base Linepack etc). This will include providing the Balancing Agent with information it may reasonably request to perform its functions.

b. Each TSO must provide the Base Linepack for each pipeline and add or remove Linepack to adjust the Base Linepack according to its adjustment mechanism.

c. Each TSO must ensure the following information is available to the Balancing Agent for each Balancing Zone:

i. the quantity of Base Linepack and the timing of any adjustments to this quantity;

ii. the current Linepack;

iii. the current pressure at each point specified in section 17;

iv. information necessary to verify the procurement of Balancing Gas;

v. the identity of Users including contact details;

vi. information about Imbalance per User sufficient to complete the Balancing Agent functions;

vii. information about the quantity and balancing of TSO Own Use gas, with separate figures for unaccounted for gas;

viii. metering data on the amount of gas received or taken from each interconnection point (including between Balancing Zones);

ix. the quantity of gas agreed between the TSO and the interconnected party or otherwise expected or scheduled to pass through each interconnection point (including between Balancing Zones where relevant);

x. any operational notices issued;

xi. historical scheduling, flow, Linepack or pressure information relevant to the functions of the Balancing Agent;

xii. Transmission System configuration, size and capacity information relevant to the functions of the Balancing Agent; and

xiii. the thresholds as outlined in the TSO's Critical Contingency Management Plan [under the Gas Governance (Critical Contingency Management) Regulations 2008].

d. The information provided to the Balancing Agent must be the best available (updated as relevant) and only used for the purposes of performing functions under these regulations.

e. Each TSO must provide the Balancing Agent with transmission services for the transmission of Balancing Gas on the following terms and conditions:

i. fully variable pricing;

ii. priority to capacity not already committed to approved nominations;

iii. no maximum daily quantity or maximum hourly quantity limits; and

iv. not to be used for anything other than Balancing Gas.

f. Each TSO must co-ordinate the management of any Linepack in any interconnected system with the Balancing Agent with a view to minimising any Balancing Actions *[for example the TSO must ensure its operation of compressors, management of Base Linepack or TSO Own Use, use of curtailment or intervention for safety or maintenance does not cause unnecessary or uncoordinated Balancing Actions].*

g. Each TSO must provide the Balancing Agent with its compressor operation policy statement that must be consistent with these regulations.

h. For clarity, each TSO will continue to manage roles and functions not explicitly covered in the regulations (eg forecasting, nominations, scheduling, metering, title tracking, transmission capacity, Gas Transfer Agent, OATIS, TO, SO etc).

i. Despite anything in these regulations a TSO may take any action it considers necessary to maintain safety.

6. **Obligations on the Industry Body**

a. The Industry Body must appoint a Balancing Agent, and ensure the Balancing Agent carries out its functions in accordance with these regulations.

b. The Industry Body may agree with the Balancing Agent the terms and conditions of the Balancing Agent service provider agreement, which may include any terms and conditions determined by the Industry Body that are not inconsistent with these regulations, and includes details of remuneration, liability limitations, any key performance indicators and any performance incentives.

c. The Industry Body may change the appointment or reappoint the Balancing Agent.

d. The Industry Body must publish:

i. the name and contact details of the Balancing Agent;

ii. the Balancing Agent service provider agreement;

iii. any written operational policy directions given by the Industry Body to the Balancing Agent (excluding routine or non operational communications); and

iv. the results of the audit under section 13.

7. **Relationship with other documents**

a. The TSO's transmission codes [MPOC, and VTC], and any other contract related to the transportation of gas on the transmission system, or the determination of quantities of gas entering or leaving the transmission system, must be read subject to these regulations (to the extent of any inconsistency).

b. A User who meets its obligations in relation to any allocation of Balancing Gas title and cost, discharges in full any obligation or liability under the TSO's transmission codes [MPOC, VTC] or any other transmission system code in respect of that allocated quantity.

c. Where a critical contingency is declared under the Gas Governance (Critical Contingency Management) Regulations 2008 then those regulations prevail over these regulations (to the extent of any inconsistency).

8. **Status of the Balancing Agent**

a. The Balancing Agent must carry out its functions under these regulations independently of any other functions carried out by that person.

9. **Management of Linepack**

a. The Balancing Agent must manage Linepack as follows:

i. if the Linepack falls below [or the Balancing Agent reasonably believes the Linepack will fall below but for the Balancing Action] the lower threshold identified in schedule 2, or as amended under schedule 2, the Balancing Agent must endeavour to purchase the minimum aggregate quantity of Balancing Gas necessary to return the Linepack to that threshold;

ii. if the Linepack exceeds [or the Balancing Agent reasonably believes the Linepack will exceed] the upper threshold identified in schedule 2, or as amended under schedule 2, the Balancing Agent must endeavour to sell the minimum quantity of Balancing Gas necessary to return the Linepack to that threshold; and

iii. [if there is insufficient Balancing Gas available to manage the Linepack within the price thresholds identified in schedule 4 then to use curtailment as prescribed in section 12.]

10. **Procurement of Balancing Gas**

a. The Balancing Agent must operate or procure the services of a Balancing Market for buying and selling Balancing Gas with the following characteristics:

i. open to all reasonably practicable Users providing Balancing Gas;

ii. accepts offers or changes to offers as late as is reasonably practical; and

iii. provided the Balancing Market is not required to accept Balancing Gas from a User with outstanding debts in relation to previous sales of Balancing Gas, does not meet the prudential requirements of the market or the Balancing Agent is unable to verify the performance on accepted offers.

b. The Balancing Agent must agree the terms and conditions for Users providing Balancing Gas with the Industry Body, and must publish these terms which will be the binding terms for sale and purchase of Balancing Gas on the Balancing Market. The Balancing Agent and Industry Body must avoid where practical Balancing Gas contracts with a fixed price component, unless in the reasonable opinion the Industry Body the Balancing Market is not sufficiently liquid.

c. The Balancing Agent must publish the terms and conditions for Users providing Balancing Gas.

d. When purchasing Balancing Gas the Balancing Agent must:

i. accept the lowest priced offers of gas to form a Balancing Action, where these offers are each increased by any transmission costs that will be incurred by the Balancing Agent in accepting that offer;

ii. pay the same clearing price to each person whose offer is accepted as part of a Balancing Action less any costs of transmission that will be incurred by the Balancing Agent in accepting that offer; and

iii. provided the Balancing Agent must not purchase Balancing Gas where the clearing price would be greater than the maximum Balancing Gas price identified in schedule 4.

e. When selling Balancing Gas the Balancing Agent must:

i. accept the highest priced offers for gas to form a Balancing Action, where these offers are each reduced by any transmission costs that will be incurred by the Balancing Agent in accepting that offer;

ii. pay the same clearing price to each person whose offer is accepted as part of a Balancing Action less any costs of transmission that will be incurred by the Balancing Agent in accepting that offer; and

iii. provided the Balancing Agent must not sell Balancing Gas where the clearing price would be less than the minimum Balancing Gas price identified in schedule 4.

f. The Balancing Agent must only accept Balancing Gas from a source other than the Balancing Market where it has first sought Balancing Gas offers from the Balancing Market.

g. The Balancing Agent must agree with the Industry Body and include in the Communications Plan; the anticipated timeframes for decisions on Balancing Actions, description of the mechanisms for receipt and delivery, acceptance and clearing of offers.

11. **Allocation of Balancing Gas and Balancing Gas costs**

a. In relation to each Balancing Action the Balancing Agent must:

i. allocate title to all the Balancing Gas sold or purchased as set out below;

ii. allocate Balancing Gas title and cost as soon as practical after committing to the Balancing Action;

iii. for purchasing balancing gas, set a cash-out price for the Balancing Gas allocated that is equal to the clearing price plus for each cash-out any transmission fees incurred by the Balancing Agent by that cash-out;

iv. for selling balancing gas, set a cash-out price for the Balancing Gas allocated that is equal to the clearing price less for each cash-out any transmission fees incurred by the Balancing Agent by that cash-out; and

v. the cash-out price must not include any overhead allocation or profit margin.

b. Allocation on the Maui pipeline

i. [*To insert a detailed description of the existing Maui regime allocation mechanism including the handling of tolerances similar to section 12 (and parts of 10 and 11) in the MPOC – essentially codifying the OBA with cash-out allocation in proportion to running operational imbalance in excess of a tolerance. There would however be amendments to the regime to make cash-outs back-to-back with the balancing action that is at the same time, the same quantity and same price.]*

c. Allocation on the Vector transmission pipelines

i. [*To insert a detailed description of the Vector regime allocation mechanism, similar to section 8 of the VTC - essentially the Balancing and Peaking Pool - with allocation in proportion to running mismatch position. This would take any portion*

of a Maui pipeline balancing action that is allocated to a Vector pipeline and on allocate that portion to the Vector shippers within that balancing zone.]

d. Allocation at Maui – Vector interface points

   i. The allocation of Balancing Gas title and cost at TSO interface points between interconnected portions of the Transmission System must be consistent with the allocation to Users to ensure TSOs are not making gains or losses of gas or money that are not due to the TSO Own Use Imbalance or due to clauses 5.h or 5.j. [*The intent is that cash-out at an interface point should match the Balancing Action allocated to the interconnected pipeline and the cash-out quantities within that interconnected pipeline to ensure cash-out is back-to-back as between parts of the transmission system.*]

e. [Maui virtual welded points

   i. *Potential to add an ability to create a 'virtual' welded point for a large downstream or upstream User – subject to detailed investigation and cost benefit analysis.*]

f. The Balancing Agent must promptly notify affected Users of the allocation of Balancing Gas title and cost. Payments must be made in accordance with the section [*invoicing section to come*]. The TSOs must immediately adjust the Users' gas entitlement.

g. In the event that the Balancing Agent is unable to allocate all of the Balancing Gas to Users (for example because of the application of tolerances) the unallocated Balancing Gas must be allocated to the Balancing Agent.

h. The Balancing Agent must keep a separate record of any Balancing Gas allocated to itself and trade that gas regularly on the New Zealand Gas Exchange or any other suitable market with a view to minimising any losses or maximising any gains in relation to the gas.

i. The Balancing Agent must:

   i. maintain a separate account to track Balancing Gas costs;

   ii. maintain a separate ledger to track Balancing Gas title;

   iii. publish a Communication Plan detailing communication mechanisms and policy;

   iv. publish in respect of each Balancing Action taken, the quantity of Balancing Gas procured and the clearing price;

   v. publish details of any Balancing Gas title allocated to the Balancing Agent (ie not allocated to a User at the time) including details of the settlement of the accumulated gas and the losses or gains made;

vi. [publish any use of curtailment by the Balancing Agent];

vii. publish any known breaches of the regulations; and

viii. operate at arms length from any Users providing Balancing Gas and including any TSO gas trading business.

j. If there are fixed costs, losses or gains that are not allocated in a specific Balancing Action (eg through a fixed price contract or due to tolerances) then these costs are allocated to the Industry Body for recovery through fees.

k. The Balancing Agent must keep confidentiality for confidential information (except where it is required to be disclosed under these regulations).

12. **Curtailment and damages**

[*Whether the scope of the regulations includes curtailment and damages is still being considered.*]

a. Where there is an insufficient quantity of Balancing Gas to manage Linepack to thresholds, the Balancing Agent may instruct Users to curtail their flow of gas in order to avoid a critical contingency situation. [*To insert details similar to the contingency curtailment rights under the MPOC or VTC*]

b. Where a User has been curtailed in excess of its contribution to the Imbalance being managed, they are entitled to claim liquidated damages from the Users that contributed to the Imbalance. *[To insert details similar to the MPOC damages regime.*]

13. **Performance Audit**

a. The Industry Body must carry out an annual audit on the performance of the Balancing Agent with respect to compliance with:

i. the Balancing Agent obligations in these regulations;

ii. any key performance indicators; and

iii. the service provider agreement.

14. **Disputes**

a. Dispute resolution would use of the Gas Governance (Compliance) Regulations 2008 (in a similar way to the Gas Governance (Compliance) Amendment Regulations 2008 which added the critical contingency regulations).

15. **Funding**

a. The development costs of establishing a Balancing Agent and the ongoing costs of operating the Balancing Agent function under these regulations is recovered through a development fee and ongoing fees. *[In the same manner as under the Gas Governance (Critical Contingency Management) Regulations 2008.]*

b. For clarity, the recovery or allocation of Balancing Agent trading of Balancing Gas is first from Users as per 11.f then from settlement of any residual Balancing Gas as per 11.h. Any net amount from trading Balancing Gas is allocated to the Industry Body as per 11.j.

c. Any bad debts will be recovered through ongoing fees.

[Note that if prescriptive regulation option B is adopted the funding would be amended to allow for development, ongoing fee and any bad debts to be recovered through TSO tariffs.]

16. **Schedule 1 – Transmission System**

a. [*To insert a map or other definition of the high-pressure open-access natural-gas transmission pipelines and their Balancing Zones. This may use the same process as the Gas Governance (Critical Contingency Management) Regulations 2008.*]

17. **Schedule 2 – Base Linepack and Thresholds**

a. The Balancing Action thresholds are as follows: [*or similar table as developed in consultation with the TSOs.*]

Pipeline	**Base Linepack**	**Upper threshold**	**Lower threshold**
Maui	XXX TJ	XXX TJ	XXX TJ
Vector North	XXX TJ	Managed indirectly through pressure control from Maui	
Vector Bay of Plenty	XXX TJ	Managed indirectly through pressure control from Maui	
Vector SKM	XXX TJ	XXX TJ	XXX TJ
Vector other	XXX TJ	Managed indirectly through pressure control from Maui	

b. [*In consultation with the TSOs, to insert a mechanism to adjust the Base Linepack numbers over time rather than locking them in, however this raises a question as to how the thresholds are set and kept consistent with varying Base Linepack. One possibility is the TSO just notifies each Base Linepack and its thresholds, and has some principles around what they are allowed to do. Another possibility is a defined change process involving the Industry Body and the TSOs. The issue is to ensure a fair amount of Linepack flexibility is provided (ie the gap between thresholds).*]

c. [*Potential to insert any pressures that may be used to monitor conditions or as alternative to Linepack thresholds.*]

18. **Schedule 3 – Tolerances**

a. [*To insert a table of tolerances used in the allocation mechanism, along the lines of schedule 7 of the MPOC. The issue is to ensure this is the maximum practical quantities while remaining less than the thresholds for Balancing Actions. There is potential to have no tolerances and just rely on the thresholds to minimise balancing transactions.*]

19. **Schedule 4 – Price caps**

a. [*To insert the maximum and minimum Balancing Gas price and a mechanism to update and amend the prices over time.*]

Appendix C Outline of regulations required to implement the participative regulation option

This outline is provided for discussion and feedback. Detailed work will be required if the participative regulation option is to be further developed. The final form of any regulations will depend on further development in light of submissions, legal advice, drafting and feedback from governmental authorities.

1. **Purpose**. To define a single arrangement for managing pipeline imbalance.

2. **Application**. Applies to Transmission Systems. Compulsory participation if owning, operating, managing, using or interconnected to a Transmission System.

3. **Interpretation.**

    a. Balance means:

        i. in relation to a shipper, to maintain matching quantities of receipts and deliveries of gas allocated to the shipper;

        ii. in relation to a trader, to maintain matching quantities between gas purchased and gas sold;

        iii. in relation to an interconnected party, to take or inject the same quantity of gas from or into the Transmission System as agreed between the TSO and the interconnected party or otherwise expected or scheduled to pass through each interconnection point;

        iv. in relation to the TSO, to match the TSO Own Use gas with an equal and opposite quantity of gas injected or taken from the Transmission System; and

        v. in relation to any other person, to match receipts and deliveries of gas.

    b. Balancing Action means one or more transactions to buy or sell Balancing Gas committed by the Balancing Agent at the same time for the same event.

    c. Balancing Agent means the person appointed under section 5.a.

d. Balancing Gas means gas added to or removed from a pipeline as part of the Balancing Agent's function of managing Linepack.

e. Balancing Market means a market created by the Balancing Agent when sourcing or disposing of balancing gas.

f. Balancing Policy means the policy statement for the Balancing Agent as defined in these regulations.

g. Balancing Zone means a part of the Transmission System as defined in the Balancing Policy.

h. Base Linepack means the Linepack when aggregate Imbalance is zero.

i. Curtailment means an instruction to reduce gas flow rate from that which is scheduled due to Imbalance or contingent events, as prescribed in the Balancing Policy, and does not include any curtailment due to capacity limits when scheduling gas flow.

j. Imbalance means the quantity of gas not in Balance, as accumulated over time.

k. Industry Body means the industry body appointed under the Gas Act.

l. Linepack means the quantity of gas in a pipeline.

m. Transmission System means the natural-gas transmission pipelines as identified in section 16.

n. Transmission System Owner or TSO means a party that owns part of the Transmission System.

o. TSO Own Use gas means all gas supply or consumption not provided for in a contract between a TSO and a third party, and may include gas used by the TSO in compressors and line heaters, losses, provision or adjustment of Base Linepack and unaccounted for gas.

p. User means a party that has entered into a contract with a TSO relating to the flow, transport or trading of gas or may otherwise affect the linepack of the Transmission System, and includes a shipper, trader, interconnected party and TSO in relation to TSO Own Use gas, and excludes the Balancing Agent in relation to performance of its functions.

4. **Obligation on Users**

a. Users must use reasonable endeavours to Balance within each Balancing Zone.

b. If a User fails to Balance within a Balancing Zone:

i. the entitlement of the User to gas is subject to adjustment by the Balancing Agent; and

ii. the User is liable to pay for the costs of any Balancing Gas purchased, or receive the proceeds for any Balancing Gas sold, by the Balancing Agent and allocated to the User under these regulations (clause11 j.)

c. Users must provide necessary information to the Balancing Agent to carry out its functions under these regulations. [*to insert details – else to delete if no information is identified*]

d. Users must meet prudential requirements.

5. **Obligation on TSOs**

a. The TSOs must jointly:

i. appoint a single Balancing Agent;

ii. have in place a single Balancing Policy approved by the Industry Body;

iii. ensure the Balancing Agent carries out its functions in accordance with the regulations;

iv. provide reports on the performance of the Balancing Agent to the Industry Body;

v. co-operate with and facilitate the Balancing Agent in the performance of the Balancing Agent functions with a view to minimizing the cost of balancing actions (for example the TSO must ensure its operation of compressors, management of Base Linepack or TSO Own Use, use of curtailment or intervention for safety or maintenance does not cause unnecessary or uncoordinated Balancing Actions); and

vi. publish the terms and conditions on which the TSOs will remunerate the Balancing Agent.

b. Each TSO must provide and is responsible for the Base Linepack for each Balancing Zone.

c. Each TSO must ensure the following information is available to the Balancing Agent for each Balancing Zone:

i. the quantity of Base Linepack and the timing of any adjustments to this quantity;

ii. the current Linepack;

iii. the current pressure at each point specified in the Balancing Policy;

iv. information necessary to verify the procurement of Balancing Gas;

v. information about Imbalance per User sufficient to complete the Balancing Agent functions;

vi. information about the quantity and Balancing of TSO Own Use gas, with separate figures for unaccounted for gas;

vii. metering data on the amount of gas received or taken from each interconnection point (including between Balancing Zones);

viii. the quantity of gas agreed between the TSO and the interconnected party or otherwise expected or scheduled to pass through each interconnection point (including between Balancing Zones where relevant);

ix. any operational notices issued;

x. historical scheduling, flow, Linepack or pressure information relevant to the functions of the Balancing Agent;

xi. Transmission System configuration, size and capacity information relevant to the functions of the Balancing Agent; and

xii. the thresholds as outlined in the TSO's Critical Contingency Management Plan [under the Gas Governance (Critical Contingency Management) Regulations 2008].

d. The information provided to the Balancing Agent must be the best available (updated as relevant) and only used for the purposes of performing functions under these regulations.

e. Each TSO must provide the Balancing Agent with transmission services for the transmission of Balancing Gas on the following terms and conditions:

i. fully variable pricing;

ii. priority to capacity not already committed to approved nominations;

iii. no maximum daily quantity or maximum hourly quantity limits; and

iv. not to be used for any other than Balancing Gas.

f. For each Balancing Zone being directly managed by the Balancing Agent, the relevant TSO must specify the Balancing Zone Linepack thresholds between which the Balancing Agent is required to manage Linepack. [The thresholds must be set as wide as practical.] [*A design issue is how to define the flexible Linepack available to the Balancing Agent and*

ensure that this is a fair share of the flexibility available. This is drafted here as a very simple test, ie 'as wide as practical', with any dispute to go to the dispute resolution process. An alternative would be to establish a special purpose process for establishing the flexible Linepack.]

g. Each TSO must provide the Balancing Agent with its compressor operation policy statement that must be consistent with these regulations and the Balancing Policy.

h. The TSOs must indemnify the Balancing Agent for any amounts that cannot be recovered from Users.

i. For clarity, each TSO will continue to manage roles and functions not explicitly covered in the regulations (eg forecasting, nominations, scheduling, metering, title tracking, transmission capacity, Gas Transfer Agent, OATIS, TO, SO etc).

j. Despite anything in these regulations a TSO may take any action it considers necessary to maintain safety.

6. **Relationship with other documents**

a. The TSO's transmission codes [MPOC, and VTC], and any other any other contract related to the transportation of gas on the transmission system, or the determination of quantities of gas entering or leaving the transmission system, must be read subject to these regulations (to the extent of any inconsistency).

b. A User who meets its obligations in relation to any allocation of Balancing Gas title and cost, discharges in full any obligation or liability under the TSO's transmission codes [MPOC, and VTC], or any other transmission system code in respect of that allocated quantity.

c. Where a critical contingency is declared under the Gas Governance (Critical Contingency Management) Regulations 2008 then those regulations prevail over these regulations (to the extent of any inconsistency).

7. **Requirements of the Balancing Policy**

a. The Balancing Policy must contain all the information required (see below) and be consistent with the Gas Governance (Critical Contingency Management) Regulations 2008.

b. The Balancing Policy must give Users a tolerance before allocation of Balancing Gas title and cost which must reflect the minimum available Linepack flexibility while minimising the non-allocation of Balancing Gas title and cost at the time of the Balancing Actions.

c. The allocation procedures in the Balancing Policy must allocate Balancing Gas title and cost;

   i. as soon as practical after committing to the Balancing Action; and

   ii. between Users in a manner that reflects the contribution of each Users Imbalance in excess of tolerance, in the relevant Balancing Zone. Allocations to other Balancing Zones that contributed to the need to take the Balancing Action are allocated to Users of the other Balancing Zones in a similar manner as if the other Balancing Zone's allocated portion of the Balancing Action (through the interconnection) had occurred within the other Balancing Zone.

d. The allocation of Balancing Gas title and cost at TSO interface points between portions of the Transmission System must be consistent with the allocation to Users to ensure TSOs are not making gains or losses of gas or money that are not due to the TSO Own Use gas Imbalance or due to clauses 5.h or 5.n.

8. **Process for Establishing the Balancing Policy and Balancing Agent**

a. The TSOs must jointly attempt to agree a draft Balancing Policy and appointment of a Balancing Agent.

b. The TSOs must jointly:

   i. consult on the draft Balancing Policy with persons that [the TSO considers are representative of the interests of persons likely to be] substantially affected by the proposed Balancing Policy;

   ii. give persons consulted at least 20 business days to make submissions;

   iii. provide copies of submissions to the Industry Body;

   iv. consider submission made and make any amendments the TSOs consider necessary; and

   v. submit the proposed final draft Balancing Policy to the Industry Body for approval.

c. The Industry Body must publish the final draft Balancing Policy and submissions.

d. The Industry Body must approve the proposed final draft Balancing Policy if it is satisfied it meets the requirements of these regulations and the objectives of the Gas Act and any related Government Policy Statement.

e. If the Industry Body declines to approve the proposed final Balancing Policy it must give reasons, may propose amendments and the TSOs must consider the reasons and any proposed amendments and may resubmit the proposed final Balancing Policy for approval.

f. If the Industry Body believes that the process has reached a deadlock (eg the TSOs are unwilling to agree among themselves or to agree with Industry Body proposed amendments) the Industry Body may prepare the Balancing Policy, including consulting where the TSOs have not already completed consultation.

g. [*To include a process to appoint a Balancing Agent where TSOs cannot agree the Balancing Agent appointment.*]

h. The Industry Body must publish the approved Balancing Policy.

9. **Amendment of Balancing Policy or Balancing Agent**

a. The TSOs may agree and propose a change to the Balancing Policy or Balancing Agent at any time by following the above process.

b. The Industry Body may propose an amendment to the Balancing Policy by following the above process (with appropriate amendments).

c. Where the Industry Body considers a change is minor or urgent it may authorise the TSOs to use a fast track alternative change process with reduced consultation.

10. **Status of the Balancing Agent**

a. The Balancing Agent must carry out its functions under these regulations independently of any other functions carried out by that person.

11. **Functions of the Balancing Agent**

a. The Balancing Agent must manage Linepack as follows:

i. if the Linepack falls below [or the Balancing Agent reasonably believes the Linepack will fall below but for the Balancing Action] the lower threshold identified in the Balancing Policy the Balancing Agent must endeavour to purchase the minimum aggregate quantity of gas necessary to return the Linepack to that threshold;

ii. if the Linepack exceeds [or the Balancing Agent reasonably believes the Linepack will exceed] the upper threshold identified in the Balancing Policy the Balancing Agent must endeavour to sell the minimum quantity of Balancing Gas necessary to return the Linepack to that threshold; and

iii. [if there is insufficient Balancing Gas available to manage the Linepack within the price thresholds then to use Curtailment in accordance with procedures specified in the Balancing Policy.]

b. The Balancing Agent must operate or procure the services of a Balancing Market for buying and selling Balancing Gas with the following characteristics:

i. open to all reasonably practicable Balancing Gas providers; and

ii. accepts offers or changes to offers as late as is reasonably practical;

iii. provided the Balancing Market is not required to accept Balancing Gas from a User with outstanding debts in relation to previous sales of Balancing Gas, does not meet the prudential requirements of the market or the Balancing Agent is unable to verify the performance on accepted offers.

c. The Balancing Agent must publish the terms and conditions for Users providing Balancing Gas.

d. When purchasing Balancing Gas the Balancing Agent must:

i. accept the lowest priced offers of gas to form a Balancing Action, where these offers are each increased by any transmission costs that will be incurred by the Balancing Agent in accepting that offer;

ii. pay the same clearing price to each person whose offer is accepted as part of a Balancing Action less any costs of transmission that will be incurred by the Balancing Agent in accepting that offer; and

iii. provided the Balancing Agent must not purchase Balancing Gas where the clearing price would be greater than the threshold identified in the Balancing Policy.

e. When selling Balancing Gas the Balancing Agent must:

i. accept the highest priced offers for gas to form a Balancing Action, where these offers are each reduced by any transmission costs that will be incurred by the Balancing Agent in accepting that offer;

ii. pay the same clearing price to each person whose offer is accepted as part of a Balancing Action less any costs of transmission that will be incurred by the Balancing Agent in accepting that offer; and

iii. provided the Balancing Agent must not sell Balancing Gas where the clearing price would be less than the threshold identified in the Balancing Policy.

f. The Balancing Agent must only accept Balancing Gas from a source other than the Balancing Market where it has first sought Balancing Gas offers from the Balancing Market.

g. [The Balancing Agent must gain the permission of the Industry Body prior to entering a Balancing Gas contract that has a fixed price component.]

h. The Balancing Agent must allocate Balancing Gas title and cost to Users in relation to each Balancing Action in accordance with the Balancing Policy.

i. In relation to each Balancing Action the Balancing Agent must:

    i. allocate title to all the Balancing Gas sold or purchased;

    ii. for purchasing balancing gas, set a cash-out price for the Balancing Gas allocated that is equal to the clearing price plus for each cash-out any transmission fees incurred by the Balancing Agent by that cash-out;

    iii. for selling balancing gas, set a cash-out price for the Balancing Gas allocated that is equal to the clearing price less for each cash-out any transmission fees incurred by the Balancing Agent by that cash-out; and

    iv. the cash-out price must not include any overhead allocation or profit margin.

j. The Balancing Agent must promptly notify affected Users of the allocation of Balancing Gas title and cost. Payments must be made in accordance with the procedures in the Balancing Policy. The TSOs must immediately adjust the Users gas entitlement.

k. In the event that the Balancing Agent is unable to allocate all of the Balancing Gas to Users (for example because of the application of tolerances) the unallocated Balancing Gas must be allocated to the Balancing Agent.

l. The Balancing Agent must keep a separate record of any Balancing Gas allocated to itself and trade that gas regularly on the New Zealand Gas Exchange or any other suitable market with a view to minimising any losses or maximising any gains in relation to the gas.

m. The Balancing Agent must:

    i. maintain a separate account to track Balancing Gas costs;

    ii. maintain a separate ledger to track Balancing Gas title;

    iii. publish in respect of each Balancing Action taken, the quantity of Balancing Gas procured and the clearing price;

iv. publish details of any Balancing Gas title allocated to the Balancing Agent (ie not allocated to a User at the time) including details of the settlement of the accumulated gas and the losses or gains made;

v. [publish any use of Curtailment by the Balancing Agent];

vi. publish any known breaches of the Balancing Policy; and

vii. operate at arms length from any Users providing Balancing Gas including any TSO gas trading businesses.

n. If there are fixed costs, losses or gains that are not allocated in a specific Balancing Action (eg through a fixed price contract or due to tolerances) then these costs are allocated to the TSOs for recovery through their tariff.

o. The Balancing Agent must keep confidentiality for confidential information (except where it is disclosed under these regulations).

12. **Performance Audit**

a. The Industry Body must carry out an annual audit on the performance of the Balancing Agent with respect to compliance with:

i. the Balancing Agent obligations in these regulations, including the Balancing Policy;

ii. [any key performance indicators]; and

iii. [the Balancing Agent service provider agreement].

13. **Disputes**

a. Dispute resolution would use of the Gas Governance (Compliance) Regulations 2008 (in a similar way to the Gas Governance (Compliance) Amendment Regulations 2008 which added the critical contingency regulations).

14. **Content of the Balancing Policy**

a. The Balancing Policy must comply with the requirements in the regulations and include the following.

b. Details about the person who has been appointed as the Balancing Agent, including:

i. their name and contact details;

ii. the party the Balancing Agent reports to;

iii. [details of remuneration, key performance indicators, performance incentives];

iv. any written operational communications given by the TSOs to the Balancing Agent (excluding routine or non operational communications); and

v. details of the liability arrangements between the TSOs and the Balancing Agent and insurance held.

c. Details of the policy and process for management of pressure and Linepack including:

i. the Balancing Zones;

ii. the Base Linepack provided by the TSO in each Balancing Zone and the process to manage the level of Base Linepack and coordinate this with the Balancing Agent;

iii. the thresholds between which the Balancing Agent is required to manage Linepack and any process to amend and publish these from time to time;

iv. any pressure readings being used to carry out the functions of the Balancing Policy;

v. details of which Balancing Zone Linepack will be directly managed by the Balancing Agent;

vi. the procedures for co-ordination of Linepack between any Balancing Zone that is directly managed and any Balancing Zone that is indirectly managed (eg the Maui pipeline may be managed directly while certain Vector pipelines may be indirectly managed via a pressure controlled connection to the Maui pipeline);

vii. any direct operation of or mechanisms to coordinate compressors;

viii. [handling of Curtailment];

ix. handling of safety;

x. principles for any discretion that can be exercised; and

xi. interaction with the Gas Governance (Critical Contingency Management) Regulations 2008 including any procurement of Balancing Gas during a critical contingency.

d. Details of the policy and process for procurement of Balancing Gas including:

i. setting of the terms and conditions for Users providing Balancing Gas;

ii. qualification of Users providing Balancing Gas including technical, location and commercial restrictions on provision of Balancing Gas;

iii. receipt of offers for Balancing Gas;

iv. the times and decision process for a Balancing Action;

v. acceptance of offers for Balancing Gas;

vi. price thresholds for accepting offers for Balancing Gas (ie caps); and

vii. the settlement of Balancing Gas quantities and prices for a Balancing Action.

e. Details of the policy and process for allocation of Balancing Gas and Balancing Gas costs including:

i. mechanisms for Balancing Gas title and cost allocation on each TSO pipeline (such as use of the TSO regime code);

ii. the application of tolerances;

iii. management of Balancing Gas title and cost allocation at TSO interface points; and

iv. notification to parties of the allocation of a cost or cash-out.

f. Details of the handling of unaccounted for gas and TSO Own Use gas.

g. The fees and tariffs for any Balancing Gas transmission services to be used by the Balancing Agent.

h. Information requirements from Users and TSOs and the processes to receive that information.

i. Mechanisms for provision of information to Users and to carry out disclosure requirements. [*Potentially a separate Communication plan*]

j. Details of the allocation of costs between TSOs arising from any allocation of unrecovered Balancing Agent costs or remuneration to TSOs.

15. **Funding**

a. The development costs of establishing a Balancing Agent and the ongoing costs of operating the Balancing Agent function under these regulations is recovered through pipeline tariffs as disclosed in the Balancing Policy.

b. For clarity, the recovery or allocation of Balancing Agent trading of Balancing Gas is first from Users as per 11.j, then from any settlement of residual Balancing Gas as per 11.h. Any net amount from trading Balancing Gas is accounted for as part of the ongoing costs.

16. **Schedule 1 – Transmission System**

a. [*To insert a map or other definition of the high-pressure open-access natural-gas transmission pipelines and their Balancing Zones. This may use the same process as the critical contingency regulations.*]

Appendix D Gas Industry Co's desired features of a balancing regime

Desired features of a balancing regime

In section 7 of the paper, Transmission Pipeline Balancing Options: Analysis of Submissions, Gas Industry Co responded to industry comments about the 'hybrid' solution proposed in the Options Paper.

In our response, we explained that our concern is that there is a coherent framework for balancing regime changes, or at least a clear direction for change. The submissions process allowed us to clarify this framework, which holds regardless of the option finally chosen for implementing change. Our view is that the framework is a single balancing arrangement applicable to both transmission systems and to all system users. In section 7.1 of the Analysis of Submissions we listed the features of a single balancing arrangement. We continue to refine these features. Table 30 Desired features of a balancing regime below sets out our current view of those features and provides a more detailed explanation.

Table 30 Desired features of a balancing regime

Desired feature	Explanation
Each user should be responsible for maintaining a balanced position.	Users' responsibilities to maintain a balanced positions accords with current arrangements in New Zealand, and is in line with ERGEG principles. Gas Industry Co's view is that it is unnecessary to redesign the entire wholesale market to enable users to maintain deliberately unbalanced trading positions. It is therefore prudent to require users to maintain balanced positions.
A party must be given the role of managing residual imbalance.	Despite the above, Gas Industry Co acknowledges that in practice there will be residual imbalance in the pipeline, which must be managed. In New Zealand this needs to be co-ordinated between TSOs to prevent duplication. Therefore there needs to be a single balancing regime and a single balancing agent.
Balancing cost should go to causers and not include penalties.	Gas Industry Co believes that, providing the Balancing Agent is able to source balancing gas, the sole consequences of being in imbalance should be meeting the costs arising from such imbalances. Such costs would include the cost of Balancing Agent actions and third party damages arising from the user's failure to maintain a balanced position. Gas Industry Co does not support imbalance penalties. Unnecessary additional costs would distort prices and create unnecessary and inefficient investment. An effective causer-pays design should remove externalities (socialised balancing costs) and hence any rationale for penalties.

Desired feature	Explanation
A user should be compensated for damages caused by others, and compensate for any damage it causes.	Lack of liquidity in the balancing market may mean that one party's actions damage another party or parties. It is therefore necessary to create a clear mechanism for dealing with damages.
Aggregate tolerances should be maximised, but not exceed the inherent balancing linepack flexibility. Tolerances should be tradeable.	A gas pipeline is capable of safely transporting gas over a range of pressures. This ability enables pipeline users to, in aggregate, use more or less gas than they collectively nominate. We call this property 'inherent balancing linepack flexibility'. Providing that the safe range of pressures is set correctly we cannot find any reason for limiting the use of inherent flexibility. In fact because the use of flexibility reduces the need for and cost of demand management, a least cost balancing regime will fully use inherent flexibility. However use outside the safe range of pressures comes at a cost. Unless users are willing to pay this cost an efficient regime must limit overall use of flexibility to the inherent flexibility only. If tolerances are tradeable users who value tolerance less can sell tolerance to users who value tolerance more, thereby ensuring that tolerance is used where and by whom it is most valued. If tolerance can be sold there is an incentive to invest in demand management, which reduces the need for tolerance and allows user to sell a portion for profit. By contrast, a regime which allocates tolerance according to 'need' (ie in proportion to imbalance), may actually decrease a user's incentive to invest in demand management since doing so would reduce need and therefore a user's claim on tolerance. (There is an argument that as long as the Balancing Agent has access to linepack flexibility through appropriate thresholds and the cash-out process is back-to-back with balancing gas costs, then tolerances are not strictly necessary, while adding significantly to complexity).
Each user outside its tolerance in the direction of a balancing action should be required to take a share of, or contribute to, gas which is bought or sold by the Balancing Agent, up to the level of its excess imbalance.	Balancing actions will be required when users in aggregate are out of balance by an amount that exhausts the inherent flexibility of the pipeline. In such cases the Balancing Agent will buy or sell gas on their behalf. Users should receive the full costs of balancing action resulting from their behaviour to allow efficient investment in information and business systems. However users should not be automatically cashed-out on a tolerance where there is no underlying balancing action. This would create more balancing costs for users than needed at the time, causing future balancing actions by the balancing agent and thereby further future cash-out costs.
The Balancing Agent should allocate balancing costs to causers as soon as practical after it commits to balancing gas.	Any balancing costs should go to the causer of the cost being incurred. This is best achieved through a back-to-back transaction at the time the cost is committed to.

Desired feature	Explanation
Gas that cannot be allocated through back-to-back transaction should be bought/sold on a market as soon as practical.	If the Balancing Agent buys or sells balancing gas which is not fully offset by back-to-back cash-outs among users, the residual amount will remain as imbalance in the system, which will adversely impact subsequent balancing actions and potentially accumulate over time. To avoid this, the Balancing Agent should trade any balancing gas on a market at a time that is convenient, and which will move unallocated aggregate imbalance towards zero.
The Balancing Agent should avoid unnecessary interventions in the balancing market.	The balancing gas bought or sold by the Balancing Agent should equal the amount necessary to return the pipeline's linepack within its defined thresholds rather than to its base linepack. This will prevent a possible overcorrection which could result in unallocated gas and socialised costs.
The balancing market should be open and to allow offers to be changed as late as is practical.	In order to allow users to self-balance to the extent possible users need to retain flexible capacity for their own use or to sell to other users for as long as possible. However on the day users may have spare capacity available. An efficient market for balancing gas includes all available capacity; and should pool all spare flexible capacity not locked-in by users for self balance and procure the gas based on the short-run marginal cost. The market for balancing gas should include Vector connected, Maui connected and potentially network connected capacity (where verification is possible).
The balancing market should clear at its marginal cost.	An efficient regime should give the same price signal to both the supply and demand side. This enables users to invest efficiently between information systems, demand side management or supply. This also means the supply side does not need to guess the clearing price but can offer spare capacity into the balancing market at short-run marginal cost and still receive the market price of balancing on the day.
Users having options to manage risk.	Users should be able to manage risks associated with balancing charges, including having good knowledge of their balance positions and having an ability to hedge price risk. The cash-out price should equal the balancing gas market clearing price to enable users to manage price risk by participating in the balancing market.
Conflicts of interest addressed.	For market confidence it is necessary that conflicts of interest arising from vertical integration are addressed.
Balancing gas costs and quantities are transparent.	Users should be clear about how balancing costs are incurred and how prices to users are set. The aggregate quantity and price of balancing gas should be transparent.
A common disputes process should apply to all balancing disputes.	The benefits of a common dispute process are consistency of treatment and the establishment of a body of precedence.
All parties have explicit responsibilities and governance arrangements are clear.	It is expensive for responsibilities and governance to be established through disputes. It is also expensive if parties are both resolving the same imbalance through different processes. Clarity of roles is vital for efficiency and confidence in the market.

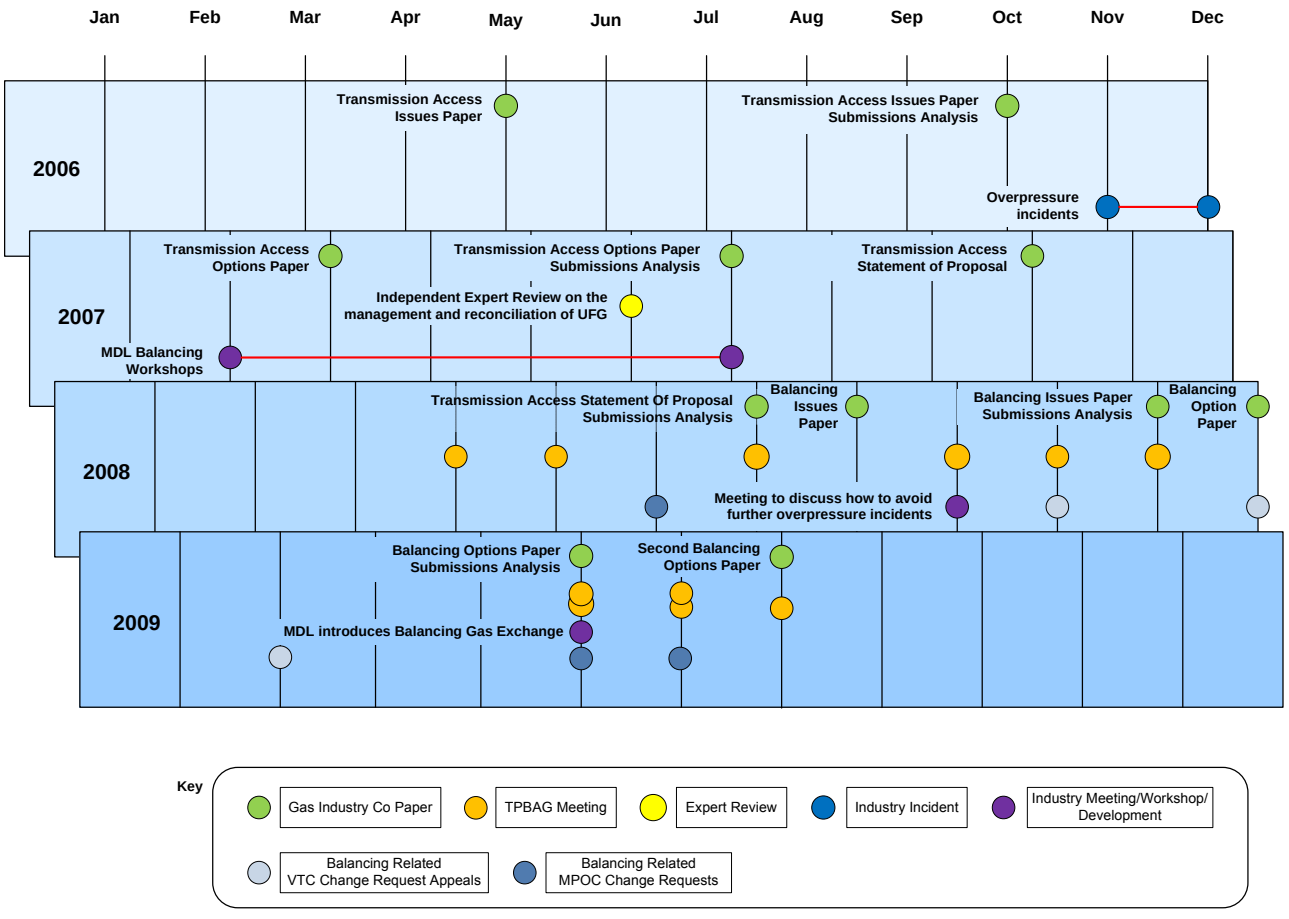
Desired feature	Explanation
Individual users and the community of users have protection against market failures.	This a catch-all to ensure that users are protected against market failures that would otherwise prevent efficient outcomes. Such failures would include information inadequacies, continuity and availability of service, common good allocation, unequal bargaining power, rationalisation, and co-ordination.

Appendix E Background to the Second Options Paper

Introduction

This paper is a timeline of previous work on transmission pipeline balancing and market developments that have occurred since this work began in 2006. It has been included as background for readers who are new to the topic of balancing, or those who wish to refresh their memory. It provides a context for how the options presented in this paper have been developed.

Figure 11: Timeline of previous work on transmission pipeline balancing



Transmission Access work stream period

March 2006: Transmission Access review begins

In 2006, Gas Industry Co began a review to determine whether access arrangements on gas transmission pipelines met the objectives of the Gas Act and GPS. The review commenced in March with a series of stakeholder interviews. At that time, although open access had been offered on Vector's pipelines for over 10 years, the Maui pipeline only became open access from 1 October 2005. The two access regimes had significant design and operational differences and many concerns were raised by pipeline owners and pipeline users, both about the individual regimes and the interface between them.

June 2006: Transmission Access Issues Paper

In June 2006, Gas Industry Co released the Transmission Access Issues Paper. Although it considered all aspects of access, the main concerns raised by the paper in connection to balancing were as follows.

- The operational complexity and cost of balancing arrangements. Specific issues included:
    - The division of the New Zealand pipeline system into four main balancing pools (one for MDL and three for Vector Transmission). The paper questioned whether this complexity was necessary—most pipeline users considered that the combined pipeline system could be balanced as a single system, as it had been in the past.
    - Multiple balancing pools were considered to possibly prevent a pipeline operator from calling on balancing gas in 'merit order', that is the cheapest source first.
- The administrative complexity of allocating balancing gas costs between multiple balancing pools.
- Cost allocation arrangements influencing operator behaviour.
- The setting of tolerances, which was complex and contentious.
- The lack of information for Shippers to gauge or manage their likely imbalance position and balancing charges.

- Possible conflicts of interest, which might influence a pipeline operator's decisions. The paper suggested this risk could be reduced by developing clear and transparent operating procedures and guidelines that aimed to minimise overall balancing costs.

- The ability of legacy Shippers to retrospectively adjust nominations negated many of the incentives and mechanisms built into balancing arrangements.

The Transmission Access Issues Paper concluded that balancing arrangements were complex and unfair, and potentially inefficient. These concerns arose mainly because of the different balancing arrangements on the Maui and Vector pipelines. The paper suggested a simpler regime could involve a single balancing pool and a single operator. Gas Industry Co urged pipeline owners to develop balancing procedures and protocols and to assist in educating Shippers on the new arrangements. It proposed that balancing should be reviewed again in a year's time, when industry had gained more experience of the new arrangements.

Transmission Access Issues Paper- Analysis of Submissions

Gas Industry Co invited submissions on the Transmission Access Issues Paper and released a Transmission Access Issues Paper Analysis of Submissions in October 2006. Submitters generally agreed that the system should be operated as a single unit, but believed that the balancing pools accurately allocated cost. On other matters there was a diversity of views. The paper considered that this was because '…balancing arrangements are complex and nobody has really got to the bottom of exactly how they will operate'.

Gas Industry Co considered that the balancing arrangements were still not well tested, and that it was too early to consider fundamental changes. Instead, the focus should be on making the existing arrangements more transparent. To assist, Gas Industry Co established a 'balancing forum' at which pipeline operators explained to Shippers and other interested parties how balancing arrangements operate.

Gas Industry Co also recommended that pipeline operators continue to develop and refine their balancing procedures and protocols, and report on those developments at the balancing forum.

November and December 2006: Over-pressure incidents

Significance of over-pressure issues

During the last few months of 2006, the Maui pipeline experienced repeated over-pressure incidents. The Target Taranaki Pressure of 48 bar was exceeded on four occasions, despite active intervention by the MDL Commercial Operator.

These incidences were symptomatic of a failure of the commercial balancing arrangements. This failure put producers who did not have compressors capable of injecting gas into the pipeline at much above 48 bar at risk of being prevented from flowing scheduled quantities of gas.

Response

The MDL Commercial Operator's initial response to the over-pressure incidents was to issue Operational Flow Orders (OFOs) to the Welded Points it believed to be causing the problem. This approach was challenged by users who considered OFOs to be unnecessary and doubted the Commercial Operator was acting as a 'reasonable and prudent operator'. Of particular concern to some users was the material adverse commercial consequences of obeying the orders. In practice, the OFOs were not obeyed, and the Commercial Operator sought an alternative approach to dealing with the issue.

For subsequent over-pressure incidents, the Commercial Operator reduced Scheduled Quantities at some Receipt Points. This 'shotgun' approach proved more effective than targeting specific Receipt Points, but it had the potential to injure innocent parties. In particular, some Shippers were forced into mismatch positions and cashed out—that is, they were sold mismatch gas from the pipeline. While the Commercial Operator's approach was effective in reducing pressure in the pipeline, the means of doing so further undermined confidence in the balancing arrangements.

Outcome

To identify the causes of the 2006 pipeline over-pressure incidents, MDL launched a series of industry workshops. The aim was to consider various aspects of pipeline operation that may have contributed to the over-pressure incidents. In a letter to the MDL Commercial Operator in February 2007, Gas Industry Co set out its views on MDL's process for resolving the over-pressure situation. Gas Industry Co supported the workshops, and suspended some aspects of its own Transmission Access Review process (the balancing and legacy forums) to avoid duplicating effort. Gas Industry Co accepted an invitation to attend the MDL workshops as an observer. Separate workshops focused on each aspect of balancing. These are described below.

February to July 2007: MDL balancing workshops

Unaccounted for gas (UFG)

One MDL workshop considered UFG. It was not able to arrive at any consensus over the possible influence of accumulated UFG on the over-pressure situation, or on the appropriate future treatment of UFG. At the final UFG Workshop on 30 April 2007, participants concluded that it was impossible to reconcile the diverse views on how UFG should be treated.

In the absence of an industry consensus, Gas Industry Co commissioned an independent expert to review the treatment of UFG on both the Maui and Vector transmission pipelines and to make recommendations where appropriate. The report, UFG Management and Reconciliation—An Independent Expert Report, was issued in June 2007.[37]

Daily allocation

Another workshop considered the influence of daily allocation. Some parties believed that balancing difficulties arose in part because reliable data on the quantities of gas sold, purchased, and transported were not available until the month-end reconciliation was complete. The Daily Allocation workshop considered the feasibility of reconciling all gas quantities on the day following gas flow, to a standard that would not require revision. It was concluded that there was a trade-off between how soon reconciled quantities could be made available and the reliability of those quantities. Also, if daily allocation were possible, it would involve new processes and systems requiring several years to develop. This proposal was therefore unlikely to improve balancing arrangements in the short-term.

Although no further work was done on daily allocation at the time, Gas Industry Co has recently resumed work on assessing whether allocating gas flows on the day following gas flow ['D+1 allocation'] is justified.

Legacy arrangements

Another workshop considered legacy arrangements which preserved the rights of parties to the original Maui Gas Contracts. These parties—Vector, Contact Energy and Methanex—had exclusive use of the Maui pipeline prior to open access, and the MPOC granted them special rights to preserve their commercial positions. These rights essentially allowed the parties to flow as much legacy gas as they needed on the day, rather than having to forecast their requirements in advance and then paying penalties (in the form of balancing charges) for any forecasting errors. The Legacy workshop sought a means of preserving these rights while at the same time preventing them from frustrating the balancing mechanisms. Several suggestions were considered, but no solution was found.

Balancing

The last workshop of this series was simply called the 'Balancing workshop'. It considered a wide range of technical and commercial aspects of balancing. While it provided a more comprehensive understanding of the trade-offs faced by pipeline operators, no simple solutions emerged. The main issues considered were:

- the need for a diverse range of balancing sources;

[37] This report is available on Gas Industry Co's website.

- the development of a market-based system to reduce balancing costs;
- the need to reduce dependency on balancing gas;
- the development of fair 'causer pays' cost-allocation mechanism; and
- physical aspects/limitations of the pipeline.

One general conclusion was that it would make sense (from physical and commercial perspectives) if the Vector and MDL pipelines were balanced as a single entity by a single Balancing Agent.

Results of the workshop process

The MDL workshop process disseminated a wide range of information related to pipeline balancing, and increased the general level of understanding among Shippers and pipeline operators. However, the process failed to identify clearly the causes of the over-pressure incidents, or reach consensus on how the various influencing factors should be dealt with.

The MDL Commercial Operator undertook to hold open meetings to update the industry on any pipeline initiatives being undertaken by either the MDL Commercial Operator or System Operator. Improvements have been slow to emerge, but balancing instructions from MDL to its Commercial Operator have continued to evolve; and the MDL Commercial Operator has continued to improve its balancing gas procurement arrangements.

March 2007: Transmission Access Options Paper

In parallel with the MDL workshops, Gas Industry Co continued its work on the wider aspects of transmission access. In March 2007, it issued the Transmission Access Options Paper, which evaluated four access framework options to resolve the problems identified in the Transmission Access Issues Paper. The options were:

- Minimal Change—making the minimal amount of change to current arrangements;
- Industry Club—establishing a strengthened and mandatory New Zealand Pipeline Access Code with industry club constitutional arrangements (of the kind which were originally envisaged when the code was written, but never effected);
- Light Regulation—converting a strengthened New Zealand Pipeline Access Code into mandatory rules; and

- Heavy Regulation—converting a strengthened New Zealand Pipeline Access Code, and the Maui Pipeline Operating Code and Vector Transmission Code into mandatory rules.

Light Regulation emerged as the preferred option, with the mix of characteristics judged best able to provide access rights to new entrants, manage the multilateral terms of access, and address conflicts of interest.

Transmission Access Options Paper-Analysis of Submissions

On analysis of submissions on the Transmission Access Options Paper Gas Industry Co did not change its view that the Light Regulation approach was the preferred option. However, submitters made some suggestions that Gas Industry Co incorporated in the next phase of development. Gas Industry Co also undertook to prepare a more detailed description of the Light Regulation option.

June 2007: Independent Expert Report on the management and reconciliation of UFG

As noted above, MDL's workshop on UFG failed to reach a consensus on how to progress this issue. Gas Industry Co commissioned an independent expert's report on the matter to help resolve the issue.

The report examined the calculation and cost allocation of UFG on the Maui and Vector pipelines and recommended how UFG should be dealt with.

The report's conclusions included the following.

- Any UFG not offset by balancing gas bought or sold by the pipeline operator is manifest in equal and opposite imbalances in linepack, mismatch or operational imbalance or a combination of these.

- Aggregate UFG over the period beginning with MDL open access (1st October 2005) to the end of May 2007 was approximately -1.25PJ. Only a small amount of this UFG was sold by the MDL Commercial Operator. Most of the remainder manifested as a large negative operational imbalance at Oaonui. The imbalance was a result of the MDL Commercial Operator issuing balancing put requests to the Oaonui Welded Party to manage linepack.

- It was understood that most of the UFG accruing on Vector Transmission pipelines was bought or sold through competitive tenders. So there was only a small amount of outstanding UFG on Vector pipelines. Therefore, the problem of reconciling outstanding UFG was confined to the MDL pipeline.

- Historical accumulated UFG should be resolved (the paper proposed several ways of doing so). UFG accruing after this date should be managed according to a preferred future UFG solution (again, the paper proposed several alternatives).

Gas Industry Co expected that MDL would consider these findings and develop an appropriate policy to deal with UFG. Although this did not happen at the time, Gas Industry Co understands that MDL is currently working on such a policy.

October 2007: Vector Transmission Code introduced

During 2007, Vector developed a Vector Transmission Code (VTC). The VTC contained Vector's multilateral Shipper arrangements and progressively displaced the existing Shipper contracts. The VTC came into effect on 11 October 2007. The code contained a detailed mechanism for allocating balancing cost to shippers, the Balancing and Peaking Pool (BPP).

October 2007: Transmission Access Statement of Proposal

The other major event in October 2007 was the release of the Transmission Access Statement of Proposal detailed the Light Regulation option. It described it as a system containing:

- regulations on transmission access specifying overarching requirements;
- transmission system codes specifying standard terms (the detailed multilateral access arrangements); and
- negotiated arrangements agreed between a TSO and a Shipper or interconnected party specifying variations to the standard terms.

The paper included draft Transmission Access Regulations, which defined three 'standard services': transport, interconnection, and balancing. In relation to balancing the main requirements were:

- the TSO must offer a balancing service (an agreement to deliver or receive any imbalances between nominated and actual gas amounts);
- balancing services may be offered either to Shippers or to Welded Parties;
- at inter-pipeline points, imbalances must be attributed to the TSO;
- the TSO must specify in its code how imbalances may be aggregated between users or across welded points before balancing charges are levied;

- the TSO is responsible for any imbalances arising from own-use gas, unaccounted for gas or at inter-pipeline points;
- the TSO must account for these imbalances as though it were paying for them on standard terms;
- the TSO must endeavour to minimise the costs of balancing associated with the purchases of balancing gas and balancing services;
- the TSO must procure balancing gas in an open and transparent way; and
- the TSO must provide information to users on their imbalances and balancing charges

The draft regulations also contained a common governance framework. The framework aimed to ensure that TSOs and transmission system users complied with the arrangements; and that disputes could be resolved in a timely and efficient manner. Ring-fencing provisions were also included to ensure that TSOs offered standard services on reasonable terms and conditions to all users, irrespective of their affiliation.

Transmission Access Framework Statement of Proposal-Analysis of Submissions

Gas Industry Co issued a Transmission Access Framework Statement of Proposal Analysis of Submissions in July 2008. In responding to the Statement of Proposal, some submitters suggested that the draft Gas Transmission Access Regulations may have gone beyond the regulation-making power in the Gas Act to 'prescribe reasonable terms and conditions of access'.

On review, Gas Industry Co accepted that there was an unacceptable level of risk in pursuing the framework approach that the draft regulation proposed. Gas Industry Co continued to believe there was merit in the framework approach and has recommended to the Minister that the Gas Act be changed to achieve that outcome. However, in the short-term, Gas Industry Co decided to separate the framework approach into individual work streams, including balancing. This recognised the widespread industry view that, while a contracts based solution to balancing problems was possible, it was also important to develop a regulatory back stop.

Pipeline balancing work stream period

April 2008: Transmission Pipeline Balancing Research Paper

As its first piece of work under the balancing work stream, Gas Industry Co issued the Transmission Pipeline Balancing Research Paper in April 2008. This paper gathered information relevant to pipeline

balancing as a resource for the industry to use in further consideration of the issues, and taking action to resolve them. The intention was not to identify all the problems with balancing arrangements. Rather it sought to present information about the balancing regime as a basis for further discussion. Gas Industry Co wished to engage with the industry to further improve balancing arrangements.

The paper noted balancing arrangements had changed little since the MDL over-pressure forums. It suggested the lack of progress may have resulted from the ongoing influence of the legacy Maui gas contract. However, other matters had also remained unresolved.

The paper examined the suitability of New Zealand's pipeline balancing arrangements by measuring them against the guidelines for best practice in Europe designed by the European Regulators Group for Electricity and Gas (ERGEG).[38] The paper concluded that the design of some the balancing arrangements was flawed, and that the two balancing regimes (on the Maui and Vector systems) were not working well together. Among other matters, concerns raised were about:

- the apparent inability of TSOs to resolve issues that had been identified;
- weak incentives on the TSOs to use the most efficient balancing arrangements;
- lack of transparency on balancing transactions;
- individual TSOs balancing actions being sub-optimal from a total system perspective; and
- socialisation of balancing costs (ie poor methods of passing costs to causers).

These issues were subsequently debated in an advisory group and reflected in an issues paper, as discussed below.

April 2008: Gas Industry Co establishes an advisory group

As an aide to developing effective policy, in April 2008 Gas Industry Co established the Transmission Pipeline Balancing Advisory Group (TPBAG), comprising industry experts able to advise it on the technical and commercial aspects of transmission pipeline balancing.

August 2008: Balancing Issues Paper

In August 2008, Gas Industry Co released the Balancing Issues Paper. The paper acknowledged that the industry had made some progress on balancing issues:

[38] See 'Guidelines of Good Practice for Gas Balancing (GGPGB) E06-GFG-17-04', ERGEG, 6 December 2006.

- MDL had introduced new balancing gas procurement arrangements and issued a new balancing instruction to its operator;
- there was the prospect of a settlement to a long-running dispute between MDL and Vector over imbalance quantities;
- retrospective re-nominations of legacy Maui gas were no longer made; and
- an MPOC change request was being considered which would remove the legacy provisions.

The Issues Paper:

- discussed linepack management including balancing tools and responsibilities;
- considered potential market failures and the case for regulatory intervention;
- described balancing arrangements in New Zealand and compared these with balancing principles developed in Europe by ERGEG;
- analysed the issues that are currently preventing effective balancing; and
- grouped and discussed design options in moving toward improved balancing arrangements.

Gas Industry Co remained concerned that core elements of the balancing regime were flawed. These concerns were described as follows. (A full discussion on each can be found in the Balancing Issues Paper.)

- Poor governance: existing balancing provisions are unclear or hard to enforce and it is hard to gain agreement on changes needed.
- The role of the Balancing Agent is unclear.
- Poor information on balancing status: users—especially mass market retailers—have poor information on current imbalances.
- Multi-day balancing and pricing period: whilst nominally one day, the balancing period historically extends over several days, because of ILON provisions and pricing lags.

- Poor transparency: it is unclear to users how balancing costs are incurred and how prices are set.
- Poor allocation of positive imbalance costs: charges to users for positive imbalances are much less than the costs that these imbalances create.
- Competing Balancing Agents: there is potential for the two Balancing Agents to be in conflict and add to balancing costs and complexity.
- High transaction costs: the complexity of balancing arrangements may give rise to unnecessarily high transaction costs.
- Inappropriate tolerances: tolerances may be too high in aggregate (compared with linepack limits) and not allocated to those who value them most.

The paper concluded that the new balancing arrangements introduced to the Maui and Vector pipelines on the commencement of the Maui pipeline open access regime on 1 October 2005 had not been operating as intended. Although some potentially improvements were anticipated, particularly the removal of the legacy provisions, Gas Industry Co remained concerned that core elements of the balancing regime were flawed, and would not provide efficient pipeline balancing.

Transmission Pipeline Balancing Issues paper-Analysis of Submission

In November 2008, Gas Industry Co issued an Analysis of Submissions on the Transmission Pipeline Balancing Issues Paper. Nine submissions were received.

Submissions reflected a general level of agreement that the issues identified in the Issues Paper accurately reflected current balancing arrangements. However, submitters felt that before further work was done, the issues needed to be clearly defined and priorities set.

Gas Industry Co's recommendation to adopt the ERGEG principles as a set of guidelines for progressing balancing options had only partial support. Gas Industry Co clarified that its intention was not for a literal adaptation of the ERGEG principles to the New Zealand gas market, but for them to act merely as a guide. The paper further clarified that options for balancing arrangements will be measured against the Gas Act and GPS while having regard for EGREG principles.

A broad range of comments were received on the possible design elements required to create a balancing solution. The majority of submitters recognised the likely efficiencies of creating a single balancing function. However, several submissions noted the importance of keeping the actual

balancing function contestable as well as being aware of the potential concentration of market power the could occur under a single Balancing Agent.

Both incremental and single (fundamental redesign) approaches were proposed as options to reach the desired outcome. Vector's submission proposed a single fundamental redesign and included an overview of how such a regime would operate. Vector felt a single overhaul solution would be the most cost effective way to achieve a satisfactory result, because incremental changes can lead to inconsistent outcomes. However, MDL felt that the 'balancing problems currently being experienced could not be solved using a "single big bang" approach' and that an incremental approach would be necessary. Gas Industry Co responded that both options needed refining before their costs and benefits could be assessed and before they could be considered 'reasonably practicable'.

The Analysis of Submissions concluded by outlining the next steps Gas Industry Co would pursue under the balancing work stream. Gas Industry Co stated it would continue to work alongside the TPBAG to further explore design elements and regime options, the outcome of which would be presented in an Options Paper.

September 2008: Forum to discuss further over-pressure incidents

Over-pressure incidents occurred on the Maui and Vector pipelines during a three to four week period in the summer of 2006/2007 and, to a lesser extent, 2007/2008. In September 2008, Gas Industry Co convened an industry forum to discuss how to prevent a similar situation occurring in the summer of 2008/09. However, there were reasons to expect the situation would not be repeated:

- the MPOC Change Request removing legacy gas provisions would allow MDL to issue one day ILONs;
- revised contracts for balancing gas would allow MDL to sell put gas to parties to clear the excess linepack; and
- possibly increased demand at Methanex (in the event no problems were experienced).

December 2008: Removal of legacy provisions from the MPOC

On 20 June 2008, Gas Industry Co received an MPOC change request from MDL. The change request proposed deleting the parts of the MPOC relating to Maui legacy gas.

Not all submissions supported the removal of the legacy provisions. Mighty River Power believed a means of managing Shippers' Mismatch risks should be in place before the provisions were removed. Vector did not support the change request until it had settled its dispute with MDL over the issue and cash-out of ILONs at Vector Welded Points. Nova Gas thought the change request failed to explain

how pipeline balancing would occur without the legacy provisions (in a supplementary submission, Nova Gas proposed further changes to MPOC, which it considered would provide the basis for more robust balancing arrangements).

Following consultation Gas Industry Co issued a final recommendation in October 2008 supporting the removal of the legacy provisions. MDL removed the legacy provisions from the MPOC in December 2008.

December 2008: Transmission Balancing Options Paper

The Options Paper:

- defined the problems associated with gas balancing and explained why Gas Industry Co proposes intervening;
- set out the key principles for balancing arrangements;
- detailed changes to the arrangements that Gas Industry Co regards as necessary and relatively non-contentious regardless of what other design elements are chosen in the preferred solution;
- described the core design features common to all practicable solutions;
- assessed the core design features;
- described the design features of Gas Industry Co's proposal that require further investigation;
- made a preliminary assessment of the design features that require further investigation; and
- outlined Gas Industry Co's proposal for improving gas balancing arrangements and the further work required to refine the proposal.
- set out Gas Industry Co's preferred solution comprised a package of elements including:
    - MPOC changes;
    - an independent expert review of MPOC tolerances;
    - analysis of daily allocation options to lessen the risks for mass market retailers;

- analysis of options for extended nominations; and

- a recommendation to the Minister of Energy that regulations be introduced to appoint an independent Balancing Agent.

Transmission Pipeline Balancing Options Paper- Analysis of Submissions

Gas Industry Co released an Analysis of Submissions on the Transmission Pipeline Balancing Options Paper in May 2009. The submissions indicated widespread support for a single balancing regime; however, they all raised concerns about the cost of achieving this by creating an independent Balancing Agent contracted to Gas Industry Co. Many submitters also believed that more work was needed to define the Balancing Agent function, and the degree of 'independence' that was required (some felt that existing ring-fencing arrangements are sufficient). Also, MDL considered that a pipeline owner's 'sovereignty' over its own business should not be infringed without compelling reasons.

Several submissions noted the improvements in balancing behaviour which occurred as a result of the removal of the legacy provisions from the MPOC (on 12 December 2008). Also, it was suggested that subsequent changes to MDL's balancing procurement arrangements may resolve some of the concerns raised in the Options Paper.

One submission raised concerns about the operation of the Balancing and Peaking Pool (the VTC mechanism for allocating imbalance costs). It suggested that regulation may be required to remedy the situation. This issue was also raised in various ways by other submitters. For example, Vector noted that if it withdrew from its interconnection agreement with MDL a new mechanism for recovering imbalance charges would need to be developed.

The Options Paper suggested ways of allocating daily balance positions at mass market delivery points (that is, locations where distribution networks interconnect with the transmission pipelines). The preferred option was the use of an algorithm based on historic month-end allocations. Most submitters agreed, but considered that deliveries to large end users would have to be deducted from the delivery point quantities before allocation takes place. Making these deductions would increase the complexity and cost of this option substantially, and might make it unviable.

Vector was the only submitter who considered that a '…fundamental and comprehensive redesign of the regime, implemented through regulations, is the only way to achieve an effective solution to pipeline balancing'. It suggested that its own proposal had not been adequately analysed by Gas Industry Co.

Other submitters preferred an incremental approach, but had differing views on how much needed to be changed.

Several submitters raised security of supply as an issue. MDL also cautioned against the view that pipeline balancing can be separated from the other tasks governing physical security of the pipeline.

Genesis advocated daily cash-out of excess operation imbalance, a position also favoured by MDL. Other submitters considered that cash-outs should only occur when balancing actions are taken.

Gas Industry Co acknowledged that some progress towards resolving balancing issues had been achieved, but that it had to ensure that such improvements, even if they are working to everyone's satisfaction, were efficient and durable.

July 2009: Industry consultation and development of the Second Balancing Options Paper

Possible termination of Vector-MDL interconnection agreement

Disputes relating to the allocation of balancing gas costs have arisen between Vector and its Shippers, and Vector and MDL, over the recovery of balancing costs. Vector has not paid balancing costs claimed by MDL because Vector has not recovered those costs from its Shippers. Vector considers the root cause of these disputes to be the chronic failure of the wider balancing arrangements. This has resulted in Vector '… assessing its withdrawal from the OBA' (p11 of Vector's submission on the Options Paper).

The OBA (Operational Balancing Agreement) is the MPOC arrangement that makes Vector responsible for imbalance at points where the Vector pipeline interconnects with the Maui pipeline. Vector then recovers costs associated with such imbalances from Vector Shippers, who are primarily responsible for the quantities of gas flowing at those points.

Section 22.9 of the MPOC would permit Vector (as a 'Welded Party') to terminate its Interconnection Agreement with MDL on 90 days' notice. If Vector did terminate, Vector and MDL would need to agree alternative arrangements for interconnection. Such a change would require consequential changes to the Vector Transmission Code and any related gas trading arrangements. This would be costly and disruptive to commercial arrangements in the industry. It would also bring pressure on Gas Industry Co to impose a solution.

In March 2009, Gas Industry Co wrote to Vector and MDL setting out its concerns about this situation and asking for a meeting to explore how the situation could be managed. Several meetings were held to discuss how the issue related to the wider balancing solution.

Resumption of Transmission Pipeline Balancing Advisory Group meetings

Following the meetings with Vector and MDL discussed above, Gas Industry Co held several meetings with the TPBAG, to update the group on Gas Industry Co's policy development work and get further input.

Gas Industry Co advised the TPBAG that consideration of the submissions on the December 2008 Options Paper had not radically changed its vision of how balancing arrangements need to change. But submissions had influenced its opinion on how the changes should be progressed.

Gas Industry Co noted the widespread support for a single unified balancing arrangement applicable to both transmission systems, and to all system users. In Gas Industry Co's view, the features of this regime should be:

- obligations on users to maintain balanced positions;
- tolerances which in aggregate are less than the inherent inter-day balancing linepack flexibility;
- balancing costs allocated to causers;
- balancing gas procured efficiently;
- users having options to manage risk;
- transparency of balancing gas costs and quantities;
- conflicts of interest addressed;
- over-pressure compensation introduced (and low pressure tidied up in light of critical contingency regulations);
- common treatment of balancing disputes;
- clear responsibilities and governance; and
- balancing regulations, if necessary to address such matters as information inadequacies, continuity and availability of service, common good allocation, unequal bargaining power, rationalisation and co-ordination.

Appendix F Back-to-back cash-out

For clarity, Gas Industry Co considers it important to explain how we envisage back-to-back cash-outs will work in practice. The key points of a back-to-back cash-out transaction are as follows:

- The Balancing Agent should buy or sell balancing gas when linepack moves outside the thresholds set, in order to return linepack to within the threshold.

- Balancing gas transactions should be allocated to the maximum extent possible among users with excess imbalance positions which contributed to the need to take the balancing action (ie allocated among 'causers').

- Allocation should be based on accumulated excess imbalance positions (AEOI) as near as possible to the time when the balancing action was committed to.

- The price of allocated gas should be the same as the price at which the balancing gas transaction occurred.

- Where the quantity of gas associated with a balancing gas transaction exceeds the aggregate amount of contributing excess imbalance, the Balancing Agent should buy/sell the excess gas on a market at a convenient time (ie when it will improve the linepack balance).

- Any net surplus or deficit cash from the Balancing Agent's gas trading activity should be socialised. This can be done through Gas Industry Co Levy (as in prescriptive allocation option A), or as a component of transmission throughput fees (as in the other options).

It is also important to note that all users who have excess imbalance positions giving rise to a balancing action will be allocated a share of the balancing gas transaction without notice. There would be no Imbalance Limit Overrun notice (ILON) period, or advance notice of a cash-out price, as the MPOC currently allows for.

Figure 12below illustrates how the possible back-to-back cost recovery for balancing call gas would take place in practice. A call balancing gas transaction is illustrated.

For balancing gas call transactions:

The first transaction(s) occurs on the day when the need for balancing gas arises. The Balancing Agent (BA) buys balancing gas from balancing gas providers (BGPs), ie users who have provided balancing gas. The terms of the sale will be outlined in a commercial contract that will be in place between BA and BGPs.

The second transaction(s), 'cash-outs', take place when the BA sells gas to each Welded Point (assuming a Maui pipeline transaction) who has contributed Accumulated Excess Operational Imbalance (AEOI) up to the amount of the AEOI (ie such AEOIs are cashed-out to the extent necessary). It is also possible that Maui Shippers could have mismatch positions which would be similarly cashed-out. This gas is sold at market clearing price.

The third transaction will only occur where the quantity of gas associated with a balancing gas transaction exceeds the amount cashed out. In that case, to avoid distorting future balancing positions, the BA will sell the excess gas on the market as soon as is practicable, when it would improve the linepack balance.

The fourth transaction(s) will only occur if there continues to be a two stage cost allocation between the Maui and Vector pipelines as at present.[39] It involves an allocation of the quantities cashed out at the Maui Transmission Pipeline Welded Point being allocated among downstream Shippers with contributing mismatch positions.

The fifth transaction(s) relate to the net costs of operating the balancing trading regime which, in the illustration, is recovered through the transmission tariff. (In the case of prescriptive regulation option A this amount would be recovered through a Gas Industry Co levy.) This amount may be either a credit or a debit, depending on the previous transactions. For example, while any quantity of gas cashed-out should be sold at the same price it was bought, any excess that was traded on the market (the third transaction) may result in a profit or a loss.

If the tolerances are set below the linepack flexibility, and UFG and own use gas is properly managed, then the balancing gas should be fully allocated. If tolerances were dropped then the quantity of the third and fifth transactions should be very small or non-existent.

For balancing gas put transactions (not depicted):

The first transaction(s) occurs on the day when the need to sell balancing gas arises, ie the BA sells BG to BGP(s). The terms of the sale will be outlined in a commercial contract that will be in place between the BA and BGPs.

[39] This two stage cost allocation may no longer be necessary if a solution is developed such as that proposed by Vector in its submission on the Issues Paper. This is a possible outcome under the participative regulation option and (although less likely) under the contracts based option.

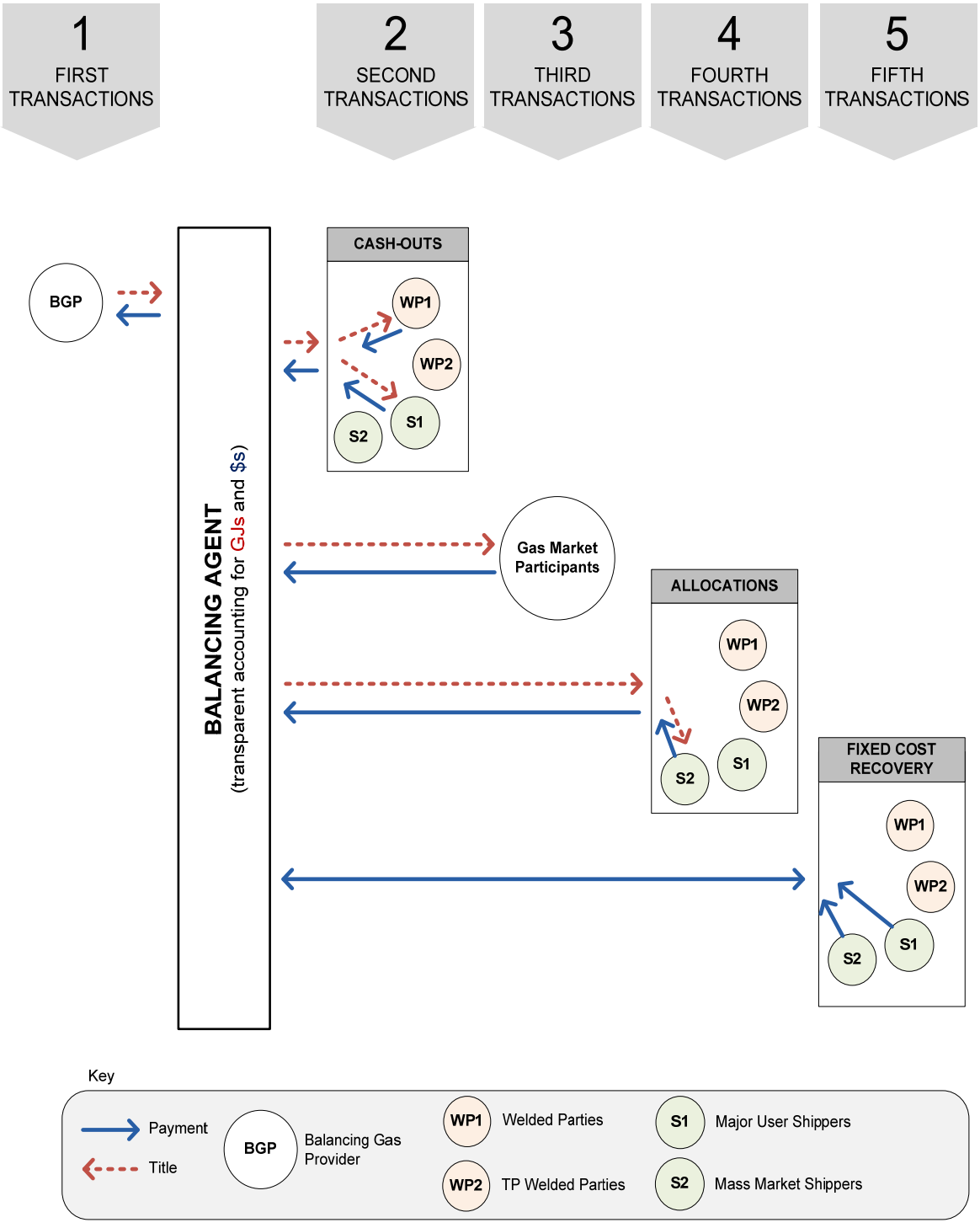
The second transaction(s), 'cash-outs', take place when the BA buys gas from each WP who has contributed AEOI up to the amount of the AEOI (ie such AEOIs are 'cashed-out' to the extent necessary). This gas is bought at a market clearing price.

To avoid distorting future balancing positions, any gas which could not be obtained through cash-out would be purchased on the market (third transaction).

The fourth transaction(s) is the allocation of the Transmission Pipeline Welded Point cash-out among downstream Shippers who contributed to the excess imbalance at that point.

The fifth transaction(s) relates to recovery of the net costs of any subsequent market transaction necessary to avoid a distortional carry forward of any net amount of gas not cashed-out.

Figure 12: possible back-to-back cost recovery



Glossary

balancing agent	The party with the responsibility for the 'residual balancing role'.
balancing gas	Gas added to or removed from the transmission pipelines by the Balancing Agent in order to manage linepack.
balancing market	The market created by the Balancing Agent when sourcing or disposing of balancing gas, whether a contracts market or a spot market. This may be different from other markets due to the timeframes for dispatching gas.
BPP	'Balancing and Peaking Pool'. A mechanism in the Vector transmission regime to ring fence and allocate balancing costs via a trust account.
cash-out	A forced trade with the Balancing Agent, used to correct part or all of a user's imbalance position.
CCMRs	Gas Governance (Critical Contingency Management) Regulations 2008.
critical contingency	A low pressure event that is sufficiently severe to invoke the CCMRs.
ERGEG	European Regulators Group for Electricity and Gas.
extended nominations proposal	A comprehensive solution to balancing problems proposal by Vector in its submission on the Issues Paper.
Gas Act	Gas Act 1992.
GPS	Government Policy Statement on Gas Governance issued under the Gas Act published 18 April 2008.
ILON	Imbalance Limit Overrun Notice as defined and used in the MPOC.
industry body	The body appointed under section 43ZL of the Gas Act.

Incentives pool	A mechanism in the Maui transmission regime to ring fence and allocate damage costs via a trust account.
imbalance	In this report the term imbalance refers to the difference between. receipts and deliveries on the pipeline and can be Operational Imbalance of the Maui pipeline or Mismatch on either the Maui pipeline or Vector pipelines.
Issues Paper	Transmission Pipeline Balancing Issues, August 2008, Gas Industry Co.
MDL	Maui Development Limited (an agent company for the Maui Joint Venture that owns the Maui transmission pipeline).
MDL Commercial Operator	'Maui Development Limited Commercial Operator'. An agent to manage the commercial arrangements of the Maui open access regime, including balancing services.
mismatch	The difference between a Shipper's receipts and deliveries which is a form of imbalance.
MPOC	Maui Pipeline Operating Code.
NZGE	New Zealand Gas Exchange, the day-ahead gas trading platform currently under development by Gas Industry Co.
OATIS	'Open Access Transmission Information System'. The information system and internet site used to manage the day to day operations of open access on the Maui and Vector pipelines
OFO	Operational Flow Order, an instruction to a user to curtail gas flow.
operating imbalance	The difference between scheduled quantities (gas entitlement) and actual flow at a welded point, which is a form of imbalance.
Options Paper	Transmission Pipeline Balancing Options, December 2008, Gas Industry Co.
residual balancing role	The role of managing linepack after the users have endeavoured to balance themselves, to ensure safe and reliable transmission services.

TOU	Time of use - generally used in reference to metering that records consumption on an hourly basis.
TPBAG	Transmission Pipeline Balancing Advisory Group.
transmission pipeline	High pressure pipelines used to transport natural gas which does not include distribution networks.
TSO	Transmission System Owner.
UFG	Unaccounted for Gas, a change in linepack where the source is not identified largely due to metering or estimation errors.
User	The users of the transmission services—either a Shipper or Welded Party.
Vector	Vector Limited in its role as owner of the Vector transmission pipelines.
VTC	Vector Transmission Code.