



Transmission Pipeline Balancing Options Analysis of Submissions

May 2009





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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1

Introduction

1.1 Background

Pipeline balancing is the management of the inventory of gas in a pipeline, known as linepack. Effective pipeline balancing is essential to the safe and efficient transport of gas in a pipeline and is therefore a key element of open access.

Concerns about the current balancing arrangements became a key feature of the Gas Industry Company Limited (Gas Industry Co) June 2006 Transmission Access Review. Since then, and as required by the Gas Act,¹ Gas Industry Co has followed an extensive review and consultation process. As part of the process, it released an Issues Paper on Transmission Pipeline Balancing (Issues Paper) in August 2008, seeking submissions from the industry to help progress a solution.

The review and consultation process led Gas Industry Co to believe that industry agreement alone is unlikely to achieve the Gas Act objectives. Indeed, Gas Industry Co's perception is that the industry is eager for Gas Industry Co to take the lead in improving and formalising arrangements for balancing. A proposal for how it might do this was set out in an Options Paper on Transmission Pipeline Balancing (Options Paper), released in December 2008.

1.2 Options Paper on Transmission Pipeline Balancing

Summary of Gas Industry Co's preferred option

The Options Paper set out the main components of Gas Industry Co's preferred option to improve balancing arrangements, including:

- establishing an independent Balancing Agent function involving daily tendering for sourcing balancing gas, possibly developing into a spot market platform;
- MPOC (Maui Pipeline Operating Code) changes to introduce effective daily balancing, allow for real-time balancing costs, and establish a damages regime for 'over-pressure' situations;
- independent expert review of MPOC tolerances;

¹ Section 43L of the Gas Act requires Gas Industry Co, before making a recommendation for gas governance rules or regulations, to '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)'.

- investigating the feasibility of daily allocation options; and
- investigating the feasibility of extended nominations options.

The structure of the Options Paper

The Options Paper was structured as follows. The 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.

Following publication of the Options Paper, Gas Industry Co called for submissions from interested parties. Submissions closed on 13 March 2009.

1.3 Submissions received

The Options Paper contained a series of questions, to which interested parties were asked to respond.

Eight submissions on the December 2008 Options Paper were received from:

- Contact Energy Limited (Contact);
- Genesis Energy Limited (Genesis);
- Greymouth Gas Limited (Greymouth Gas);
- Maui Development Limited (MDL);

- Mighty River Power Limited (MRP);
- New Zealand Steel Limited;
- Nova Gas Limited (Nova); and
- On Gas Limited, Vector Gas Contracts Limited, and Vector Gas Limited (Vector).

The full text of all submissions is available on the Gas Industry Co website: www.gasindustry.co.nz.

Gas Industry Co thanks those involved in compiling these submissions.

1.4 Structure of this paper

This paper begins with a summary of submissions. The rest is structured in the same way as the Options Paper. Each section briefly reviews what was said in the Options Paper, reports the main points and common themes from the submissions, and gives Gas Industry Co's response.

1.5 Next steps

Transmission Pipeline Balancing Advisory Group

Gas Industry Co will:

- continue to work with the Transmission Pipeline Balancing Advisory Group on the technical and commercial aspects of balancing arrangements;
- meet with MDL and Vector to explore how the possible termination of the interconnection agreement with MDL can be managed;
- continue to refine its options analysis and present a further assessment of the balancing options for consultation; and
- advise the Minister on this matter before the end of the calendar year.

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Overview of submissions

2.1 Contact

Contact's submission generally supported Gas Industry Co's proposal. They felt it had the potential to deal with most of the identified balancing issues. However, Contact thought Gas Industry Co should:

- adopt a more consistent approach to evaluating options, using the objectives set out in the Gas Act and the Government Policy Statement (GPS);
- clarify that its proposed studies and investigations are aimed at implementing an improved balancing regime rather than just providing more views on balancing arrangements;
- ensure previously identified concerns with balancing arrangements are dealt with;
- maintain up-to-date cost benefit analyses of its proposals to avoid wasting effort and resources on those unlikely to provide adequate benefit; and
- develop a clear understanding of how developments will be funded.

As part of its work programme, Gas Industry Co should identify how to implement its proposal at least cost and in a timely manner. It should co-ordinate implementation with significant industry developments such as the implementation of the new Vector Transmission Code (VTC) scheduled for October 2009.

2.2 Genesis

Genesis asserted its conviction that incremental change is the best strategy for improving transmission pipeline balancing processes. Reasons are:

- the gas market is evolving rapidly;
- there are promising incremental improvement options; and
- big changes are risky and unnecessary in such an environment.

In the three months since the Options Paper was released, pipeline balancing arrangements have improved. For example: self-balancing has improved markedly since the Maui Legacy Provisions were removed from MPOC; the balancing gas market has evolved into a functioning gas put and call market with predominantly on-the-day offers; and the Maui Balancing Agent has progressed its practices by making claims on the Maui Incentive Pool for out-of-balance Welded Points.

Genesis noted that in submissions on the Issues Paper, four market participants (Genesis, MDL, Contact, and MRP) supported incremental improvement to balancing arrangements. Only one participant (Vector) favoured a clean slate approach.

Genesis expressed confidence that Gas Industry Co and industry participants can make further improvements reasonably rapidly. This can be achieved without the risks and costs of establishing a new Balancing Agent function.

2.3 Greymouth Gas

Greymouth Gas submitted that there are two over-riding questions to ask:

- What can be done better now, broadly in line with the current arrangements (that is, with Vector and MDL both as Balancing Agents)?
- Then, after that is resolved, should there be a single independent Balancing Agent or is the current Vector and MDL arrangement sufficient?

Greymouth Gas believed it remiss to tackle the second issue before a full options analysis is undertaken on the first, and before any resulting recommendations are implemented and assessed. They suggested a range of questions to explore and resolve in a process that would deliver cheap and pragmatic options for bringing the current arrangements into line with the Gas Act and GPS. This is preferable to investing large sums on a new system.

When all other options have been assessed, only then should the question of a single independent Balancing Agent be considered. This approach would allow a comparison of the current and proposed regimes, taking into account value for money and market efficiency. The outcome would allow Gas Industry Co to determine the point at which the government should intervene to ensure the market operates efficiently, recognising that the industry—not the government—bears the cost.

2.4 MDL

MDL stated its support for initiatives to improve the balancing arrangements across New Zealand's gas transmission system. However, they were strongly of the opinion that existing arrangements

should be reviewed before any interventions are made. A robust review would provide assurance that proposed arrangements improve the current ones.

MDL noted the Maui pipeline balancing arrangements have evolved significantly since the Options Paper was released. The Maui Legacy Provisions have been removed and new arrangements introduced for managing and using balancing gas. This means that parts of the information and reasoning upon which the Option Paper is based should be reviewed. MDL acknowledged that the arrangements now in place for the Maui pipeline do not fully meet Gas Industry Co and industry objectives, but they go some way towards doing so. Furthermore they are capable of being extended to meet these objectives.

MDL also observed that Gas Industry Co's proposed arrangements give rise to significant issues for MDL (as owner and operator of the Maui pipeline) and for the community of users of the Maui pipeline.

2.5 MRP

MRP supported, in principle, the concept of a single Balancing Agent. However, they noted the bulk of the work related to this option was completed before the removal of the Legacy Gas provisions in the MPOC. Given the number of balancing actions has since reduced significantly, MRP expressed doubt about the viability of the concept of a single Balancing Agent.

They suggested there would be significant improvements in pipeline balancing behaviour if a solution could be found for the daily allocation of retailers' mass market gas loads. This should be the priority issue rather than reviewing pipeline tolerances and developing the single Balancing Agent concept.

MRP submitted that the single Balancing Agent option should be reviewed to ensure that all the assumptions in the Options Paper are still valid. They also submitted that it would be desirable to delay any decision on this option for 12 months, or until Gas Industry Co better understands the long-term affect on pipeline balancing behaviour of the removal of the Legacy Gas provisions from the MPOC. Gas Industry Co should conduct a robust cost benefit analysis of the introduction of a single Balancing Agent and the proposed review of the pipeline tolerances. The analysis should be completed before committing to implement either of these proposals.

2.6 New Zealand Steel

New Zealand Steel agreed with most of Gas Industry Co's concerns about the current balancing regime. They commented that, even after the changes in December 2008, the MPOC rules do not sufficiently encourage natural gas users to manage their balance positions. The mechanics and outcomes of the current regime are misaligned with the primary goals as defined in the Options Paper.

As end users, New Zealand Steel sees the fundamental problem being the two days allowed for users to correct a mismatch between nominated and actual gas consumption. This 'wash up' period offers no incentive for users to take account of the balance position of the pipeline at the time they act to correct their mismatch. Therefore the intervention of a Balancing Agent is required. The 'wash up' period also means the costs associated with the balancing action are usually socialised rather than attributed to the causer via a cash-out. New Zealand Steel acknowledged that since the MPOC changes, the Balancing Agent has made fewer interventions—but it is still making a significant number. More stringent rules on end users would further reduce the number of interventions needed, and the associated costs. New Zealand Steel also considered balancing actions need to be more transparent.

New Zealand Steel submitted that a financial instrument alone is ineffective in improving balancing. But substantial improvements could be made if users were bound by a tighter timeframe for correcting imbalances. New Zealand Steel therefore considered the 'do-nothing' option should be discounted and an on-the-day balancing regime be adopted as soon as practicable.

2.7 Nova

Nova supported the development of a regulatory backstop solution to balancing issues. They suggested that should the industry fail to adopt efficient and effective balancing arrangements through existing contractual arrangements then regulations should be implemented.

Nova thought the option of establishing a single independent Balancing Agent is feasible, but they thought it likely to be costly and complex given the required inter-relationships with Transmission System Owners (TSOs). A better option is to establish rules or regulations regarding balancing actions to be performed by TSOs.

Nova observed that in practice there is only one Balancing Agent in operation (MDL). Vector is a passive participant in this area and relies on MDL to manage imbalance. Vector passes through costs and revenues associated with imbalance to causers on its own system. However, Nova commented on a new issue that is developing regarding this pass-through of imbalance charges. The issue relates to the accounting for historical demand allocations that affect imbalance cost pass-through. The Options Paper focuses mainly on the process of procuring balancing gas; however, Nova suggested arrangements are needed to ensure appropriate pass-through of imbalance costs to causers to minimise socialised costs.

2.8 Vector

In its submission, Vector asserted that pipeline balancing is now the most significant issue for the gas sector. They maintained that a fundamental and comprehensive redesign of the regime, implemented through regulations, is the only way to resolve this issue.

Vector noted that Gas Industry Co proposes a hybrid and incremental approach to reform, beginning with changes to the MPOC and ending with a single Balancing Agent being established by regulation. However Vector regarded these as competing options, which should be considered separately. The first question is which of these two options gives the industry the greatest benefit; that option should then be implemented. In relation to this, Vector observed that current operational balancing (OBA) arrangements are voluntary and that Vector is considering withdrawing from them (that is, terminating the interconnection agreement between Vector and MDL).

Vector expressed concern that Gas Industry Co is tackling areas of detail before deciding on an overall design framework for the new regime. They also noted that Gas Industry Co has not given consideration to all possible design options. For example, the Vector submission of September 2008 proposed that the Balancing Agent be able to operate a suite of balancing tools, and an alternative approach to allocation. Neither appears to have been given full consideration. Consistent with the requirements of s43N of the Gas Act, Vector encouraged Gas Industry Co to identify all reasonable practicable options and to provide a cost benefit analysis of all such options before moving to implement particular ones.

Vector's view is that balancing is the single most important component in the Gas Industry Co's FY2010 budget. Therefore, the importance of maintaining an 'open mind' on the best industry solution cannot be over-emphasised. Accordingly, Vector urged Gas Industry Co to reconsider Vector's balancing proposal in total as part of its further analysis.

3

Objectives

What the Options Paper said

In assessing the options for institutional arrangements for balancing, Gas Industry Co applied the principles set out in the Gas Act and the GPS. The Gas Act requires such an assessment if Gas Industry Co recommends regulations at a later stage.

In effect, the Gas Act and GPS objectives promote service standards and efficiency. Based on these objectives, 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.

Gas Industry Co proposed that signalling costs to causers helps minimise overall costs to the industry. The right price signals convey to users the most cost effective way of correcting an imbalance, either self-balancing or relying on a centralised Balancing Agent to take a balancing action. An efficient outcome for the industry requires an optimal mix of these two alternatives. A balancing price that reflects the marginal cost of balancing makes this optimal mix possible. It also encourages users to invest efficiently in capacity and information.

Pooling supply flexibility on the day also helps minimise balancing costs. Short-term gas trading is one means of achieving least cost balancing, ensuring all unused capacity is available and pooled for balancing. Users retain control over their capacity until it is clear they do not need it for themselves on the day. Short-term trading also helps ensure that the balancing price is the true marginal cost of balancing. Gas Industry Co's preference is for a solution that maximises efficiency (least cost balancing) subject to ensuring that small retailers can manage the risks associated with balancing costs.

Gas Industry Co determined a set of criteria against which to assess practicable options. These criteria were based on the efficiency objective and supplemented with the design principles adopted by the European Regulators Group for Electricity and Gas (ERGEG).

The Options Paper asked submitters to comment on whether the objectives are appropriate for analysing balancing options; and, if not, what other objectives are appropriate.

What the submissions said

In general, submitters agreed that the objectives identified in the Options Paper are appropriate for analysing balancing options. However, some submitters made suggestions for clarifying or modifying the objectives.

Contact considered the Options Paper did not make a clear link between the objectives used to analyse balancing options and the objectives in the Gas Act and the GPS, which are relevant to assessing balancing options. Also, the analysis in the Options Paper applied the objectives inconsistently across the various parts of Gas Industry Co's proposal. They suggested that if Gas Industry Co wishes to apply different objectives for each option, then it should clearly show how they relate to those in the Gas Act and the GPS.

Three submitters (MDL, Nova, and Vector) noted that security of supply is an important objective, but it is missing from the Options Paper analysis. In particular, the objective of 'least cost' balancing must be considered in the context of security of supply.

The use of the words 'least cost' also raised questions for Genesis and Greymouth Gas. Genesis suggested the wording of the objectives should make it clear that 'least cost' refers to long-run costs to the economy rather than the cost to an individual or group of individuals. Greymouth Gas suggested the aim shouldn't necessarily be for least cost balancing, but for cost neutrality, or for all balancing costs to be passed to causers.

Genesis offered alternative wording for other objectives as well. The intent was to generalise the objectives so they did not direct an outcome.

Two submitters, New Zealand Steel and Vector, commented on the ERGEG principles. Both agreed these principles are useful in analysing the balancing options. Vector's view was that the ERGEG principles are a more useful and comprehensive framework than the two higher-level principles set out in the Options Paper.

Gas Industry Co comment

Gas Industry Co must consider the Gas Act and the GPS objectives when recommending rules and regulations. Therefore, these two sets of objectives formed the framework for our process of evaluating balancing options. From the framework, we derived sets of evaluation criteria specific to each part of the proposal. To keep the Options Paper short, we did not describe the process by which we derived these criteria. We acknowledge that a clearer statement of how they are linked to the Gas Act and GPS objectives would have been helpful.

Gas Industry Co acknowledges the ERGEG principles are also a useful framework for evaluating balancing options. A description of the process by which we derived each set of criteria would have shown that the ERGEG principles informed our thinking. However, Gas Industry Co must give ultimate consideration to the objectives set out under the Gas Act and GPS.

Some submissions indicated that the Options Paper was also unclear on the goal to achieve 'balancing at least cost'. Gas Industry Co's view is that 'balancing at least cost' is different from minimising the number of balancing actions taken by the Balancing Agent. There will be situations where it is cheaper for the Balancing Agent to take a balancing action than for a user to self-balance. Balancing arrangements that aim solely to minimise Balancing Agent activities have the potential to increase overall costs for the industry.

Where balancing options are analysed in future papers, Gas Industry Co will show how its evaluation criteria relate to the Gas Act and GPS objectives. Gas Industry Co will also consider the alternative formulations of the evaluation criteria suggested in some submissions.

4

Necessary developments

Section 3 of the Options Paper discussed changes to existing arrangements that Gas Industry Co regards as necessary, regardless of what other design elements are chosen for the preferred solution. These changes are:

- the need to review tolerances; and
- changes to the MPOC to:
 - enable back-to-back cash-out;²
 - allow balancing prices to reflect costs; and
 - provide for damages for over-pressure episodes.

4.1 Review of tolerances

What the Options Paper said

Tolerances allow users to depart from their nominated positions without incurring balancing costs. The level at which tolerances are set affects how balancing costs are allocated among users. If tolerances in aggregate provide more leeway than the flexibility of the pipeline, balancing costs are socialised across all users.

Gas Industry Co proposed commissioning an independent expert review of tolerances to avoid what it sees as the potential socialisation of balancing costs. The review would be expected to establish:

- the levels of tolerance that would be appropriate for users to fully utilise the inherent flexibility of the pipelines;
- the levels of tolerance that would be efficient at present; and
- the factors that would influence the setting of tolerances in the future.

² 'Back-to-back cash-out' is the buying or selling of gas from, or to, users who have excess imbalance on the same day as the gas was traded with balancing gas providers.

The Options Paper asked submitters to comment on whether they agree it is necessary to review tolerances.

What the submissions said

Five submitters agreed that it is necessary to review tolerances. Vector also agreed, but commented that tolerances are an integral part of a balancing regime and cannot be considered in isolation. They did not support the review of tolerances being a work stream separate from the design of an overall balancing regime.

Submitters made several comments and observations on the matter of tolerances.

- Setting tolerances at a level that provides more leeway than is inherent in pipeline flexibility will result in socialised balancing cost. (Contact)
- Tolerances should be allocated in a way that rewards those who have managed imbalance, whereas the Vector regime allocates tolerance to those with most mismatch. (Contact)
- Relaxed tolerances can lead to higher balancing cost; the most efficient position will be achieved following a substantial reduction in tolerances. (MDL)
- Evidence suggests the Maui pipeline can be run at a higher pressure and therefore more linepack can be made available. (Nova)

Other submitters suggested a review of tolerances should:

- examine running operational imbalance limits, daily operational imbalance limits, and peaking limits, and consider how to make an equitable, principles-based allocation of tolerances; (Genesis)
- clarify Schedule 7 of the MPOC (which sets out tolerances for Rotowaro, Pokuru, and Pirongia); (Genesis)
- consider the feasibility of penalty-type arrangements for breaching tolerances and whether this affects appropriate tolerance levels. (Greymouth Gas)

Despite the general agreement that a review of tolerance is necessary, submitters raised some concerns, as follows.

- Principles that work in large gas industries such as Europe do not necessarily work in New Zealand and, if applied, might result in higher compliance costs. (MRP)
- A cost benefit analysis should be carried out before engaging an independent expert to do the review. (MRP)

- Changing tolerances without considering other factors such as the time and number of nominations cycles could produce a less-than-satisfactory outcome. (New Zealand Steel)

Greymouth Gas did not agree to a review of tolerances in the short term, but felt it would be useful in the future when balancing arrangements more closely reflect balancing principles.

MDL was not in favour of Gas Industry Co reviewing tolerances, because they have already started to review tolerances provided to Maui Pipeline users. Their review will examine the linepack allocations for emergency and contingency use, then set the requirements and limits for balancing actions and examine the rationale and size of pipeline tolerance allocations.

Gas Industry Co comment

Balancing regime objectives are to minimise overall costs and allocate costs to causers. Gas Industry Co's view is that achieving these objectives requires attention to the physical balance of the pipeline, not the positions of individual users. Operating pressures, compressor operations, and contingency volumes are examples of the physical aspects of the pipeline that underpin the availability of tolerances.

Tolerances are valuable to pipeline users where their demand is uncertain. Demand uncertainty can be mitigated through investment in demand management and forecasting tools. However, the use of tolerances provides access to whatever flexibility is available in the pipeline, and contributes to minimising overall costs.

Where tolerances are set too conservatively, users will need to over-invest in demand management and forecasting tools. Where tolerances are set too liberally, balancing costs will be socialised to a greater extent. Gas Industry Co therefore continues to believe that a review of tolerance is necessary. However, we note that MDL will also be reviewing tolerances, and we will seek all reasonable opportunities to avoid duplication of effort.

It seems that underlying the different perspectives on tolerance is a range of views about how back-to-back cash-out might work. For example, some submitters saw cash-out occurring whenever users are in imbalance outside their tolerance regardless of the physical requirements of the pipeline (that is, users always incur a cost for going beyond tolerance). Under such a regime, how tolerances are set becomes a significant issue.

Gas Industry Co's view is that cash-out quantities should be limited to the amount of gas bought or sold in balancing transactions. Cash-outs would only apply to imbalance that contributes to the need for a balancing transaction. In other words, a party whose running operational imbalance (ROI) goes beyond its tolerance is exposed to a *risk* of cash-out; but a cash-out would only occur if that ROI contributed to a situation requiring the Balancing Agent to take action. Under this regime, tolerances become less of an issue.

However, for such back-to-back cash-out arrangements to be effective, Gas Industry Co believes that aggregate tolerances should be set at a level which does not exceed the flexibility of the pipeline that is available for balancing. Also, since back-to-back cash-outs would not allow sufficient time for users to adjust their imbalance positions before the cash-out takes place, users would want assurance that the Balancing Agent's procurement arrangements are efficient.

Assuming that the features discussed above were present, Gas Industry Co considers that back-to-back cash-out arrangements could then provide that:

- where time allows, the Balancing Agent notifies users of its intention to take a balancing action;
- all Accumulated Excess Operational Imbalance (AEOI) is exposed to potential cash-out without notice;
- when balancing gas is bought or sold from/to balancing gas providers, that gas is simultaneously sold or bought to/from users with contributing AEOI (although these transactions will not be notified until AEOI positions are verified);
- where the amount of balancing gas bought or sold exceeds the amount of contributing AEOI, the remainder of the gas is traded³; and
- a linepack account would be maintained to record all GJ and dollar transactions.

4.2 Changes to Maui Pipeline Operating Code

What the Options Paper said

Gas Industry Co's view is that the Imbalance Limit Overrun Notice (ILON) process prescribed in the MPOC needs improving. Currently, MPOC requires MDL to post balancing charges with a notice period of at least seven days. Gas Industry Co is concerned the notice period means posted prices do not reflect the costs of balancing actions, and the delayed cash-out allows causers to avoid the cost consequences of their actions.

A more dynamic process would allow the cost of balancing actions to be charged to the user causing those actions at actual cost. Such a process would promote efficient behaviour and provide incentives for investment in information and business systems.

Gas Industry Co also considers the MPOC needs a regime to compensate parties damaged by 'over-pressure' episodes caused by other pipeline users. In these incidents, producers are unable to inject their scheduled quantity of gas into the pipeline because other users inject more gas than

³ If tolerances in aggregate do not exceed the inherent balancing flexibility of the pipeline, the amount of balancing gas should not exceed contributing AEOI.

they are entitled to, or do not uplift gas. In the Options Paper, Gas Industry Co encouraged MDL, or other MPOC parties, to propose MPOC changes to allow for a damages regime.

The Options Paper asked submitters to comment on whether they agree it is necessary to consider MPOC changes as described.

What the submissions said

In general, submitters agreed that changes to MPOC should be considered. However, some felt the proposed changes do not go far enough; or that other issues need to be considered or given higher priority.

Contact was concerned that the Gas Industry Co's proposed list of MPOC changes is too short and could usefully include several others. Suggested additional changes include (amongst others) more appropriate use of tolerances, better definition of the Balancing Agent, and implementation of a single balancing regime. Contact also thought the MPOC should allow Shippers with rights at Maui/Vector interconnection points to use balancing tools independently of Vector. These tools would include rights to trade imbalances at other Welded Points and the right to exercise the *force majeure* provisions of the MPOC. In addition, Contact commented that changes to the VTC have not been included in the proposal, but these could also help improve balancing.

Greymouth Gas also agreed with the proposal to consider MPOC changes, but felt they don't go far enough.

MRP felt there are issues that need to be considered before any MPOC changes are implemented. Their main concern was the need to deal with the lack of a daily allocation process that would allow them to manage their position.

Nova noted that if a solution to pipeline balancing were to be applied through regulations then these would likely override certain provisions in the MPOC and the VTC. They suggested that while changes to the MPOC would improve arrangements, other issues would arise. These other issues include cash-outs occurring when there is no physical need for balancing services; and balancing gas being required even when there is no cash-out because all Welded Parties are within their tolerances. They suggested cash-outs should occur only if balancing services are procured. This would bring the arrangements closer to managing pipeline imbalance rather than managing imbalance at Welded Points.

Vector did not support proposals to implement change through the MPOC change process as a short-term solution until a Balancing Agent is established. They believed the best approach is to design a comprehensive regulatory solution with a single Balancing Agent as the central component. Such a model would make the proposed MPOC changes unnecessary and inefficient.

Enabling back-to-back cash-outs

Contact commented that the ILON period cannot be driven by the need to physically balance the Maui and Vector pipelines. Welded Parties on the Maui pipeline (except large producers and consumers) and Shippers on the Vector pipeline do not have the information necessary to balance within the short periods in which balancing needs arise. Therefore, only the pipeline operator is able to respond sufficiently quickly to correct physical pipeline imbalance.

Contact suggested there would be no need to shorten the period available to correct ILONs if MDL's proposal to introduce operational balancing works. Under that proposal, the use of operational balancing gas should act as a 'borrow and lend' facility for Shippers. However, a problem arises because the Incentives Pool will not necessarily have sufficient funds to cover the cost of operational balancing, resulting in socialised costs. A replacement mechanism that directs these costs to the causer is required.

Genesis agreed that MPOC changes to improve balancing arrangements should be a priority. But these changes should underpin balancing arrangements over the long term, rather than being an interim measure until a new regime is introduced. They preferred implementing daily cash-outs of excess operational imbalances rather than amending the Incentives Pool as a way of improving users' incentives to stay within tolerances.

MDL stated that back-to-back cash-out is difficult to achieve because balancing decisions are not made by looking at individual balancing positions, but by assessing the pipeline as a whole. Before deciding to implement back-to-back cash-outs, their effects need to be carefully examined.

New Zealand Steel commented that the slowness of the ILON process means that costs allocated to causers do not always directly reflect the cost of the balancing action. They felt clear rules are required to ensure transparency.

Allowing prices to reflect costs

Contact agreed that MPOC balancing arrangements would be more efficient if balancing prices were adjusted daily and advised the day before they were to apply. MDL agreed that the seven-day notice period for Mismatch Prices should be reduced.

Providing for damages for over-pressure episodes

Contact agreed that the MPOC should be changed to provide a damages regime allowing compensation to be paid to producers unable to inject gas because of over-pressure episodes caused by another party. New Zealand Steel also agreed that such a change is worth considering. However, MDL observed that recent changes to the Maui pipeline operating environment have meant that pipeline users now have greater incentives to manage their positions during periods of over-pressure.

Vector did not agree that that a damages regime for over-pressure situations will necessarily provide appropriate incentives. Such a regime could cause under-investment in compression and result in lower pipeline operating pressure.

Gas Industry Co comment

For Gas Industry Co's response to issues regarding back-to-back cash-outs, refer to the discussion in the previous section on cash-outs and tolerances.

Gas Industry Co acknowledges that over-pressure episodes are complex. But currently, there is no mechanism that compensates a party damaged by another who has prevented transmission services. Gas Industry Co disagrees that such a regime would encourage under-investment in compression. A damages regime would come into effect only when pressures exceed limits. We think it likely this would result in fewer over-pressure situations.

Gas Industry Co accepts that, in addition to the MPOC changes identified, further MPOC changes and some VTC changes are likely to be necessary to achieve efficient balancing. However, we believe that it is best to focus on the critical changes necessary to implement the preferred balancing solution. We also consider that it may be best to include these critical code changes in the minimum set of regulations necessary to implement the preferred balancing solution.

5

Core design features

Sections 4 and 5 of the Options Paper discussed those aspects of the balancing regime common to all practicable options, and provided a preliminary assessment.

These core design elements of Gas Industry Co's preferred solution are:

- users will retain the primary responsibility for balancing; and
- some party needs to undertake the residual gas balancing role, which is currently undertaken by the TSOs. Gas Industry Co recommended transferring the commercial aspects of the residual balancing role to a single Balancing Agent.

5.1 Users retain the primary balancing obligation

What the Options Paper said

Currently users are obliged to balance their inputs and outputs so that they remain within their tolerances. Submissions on earlier consultation papers generally supported the principle that users should have the primary obligation to balance. This appears to be a common approach in Europe. TSOs should have only a residual safety role when commercial arrangements fail.

Gas Industry Co believes that primary balancing should remain with pipeline users. Section 5.2 evaluated whether a regime which could accommodate users maintaining deliberately imbalanced trading positions was a viable alternative option. The conclusion was that this would involve creating a gross pool through which all gas was traded. This was considered unjustified, and it was concluded that the primary balancing obligation should remain with users.

The Options Paper asked submitters to state whether they agree the primary balancing obligation should remain with pipeline users.

What the submissions said

Four submitters (Genesis, MDL, MRP, and New Zealand Steel) agreed that pipeline users should have the primary balancing obligation.

However, three submitters (Greymouth Gas, Nova, and Contact) felt that TSOs also have a responsibility to balance. The TSO operates the pipeline and is responsible for its safety—it should also therefore have a primary role in balancing. Nova noted the intertwined roles of pipeline operator and Balancing Agent. Separating these functions may resolve issues associated with conflict of interest, but not those associated with a lack of incentive.

Vector strongly agreed that Shippers should have the primary responsibility to balance inputs and offtakes. However, they also considered that producers need to have an obligation to balance injections and aggregate nominations at particular injection points.

Two submitters referred to the availability of information and tools to help users balance. Contact agreed that it is efficient for the cost of imbalance to be borne by causers. However, to manage their positions, these parties must not only be able to manage injections and offtakes, but also have access to other balancing tools such as the right to trade imbalances and the right to exercise the *force majeure* provisions of the VTC and the MPOC. Genesis also commented that developments in balancing arrangements should be focused on providing users with information and tools.

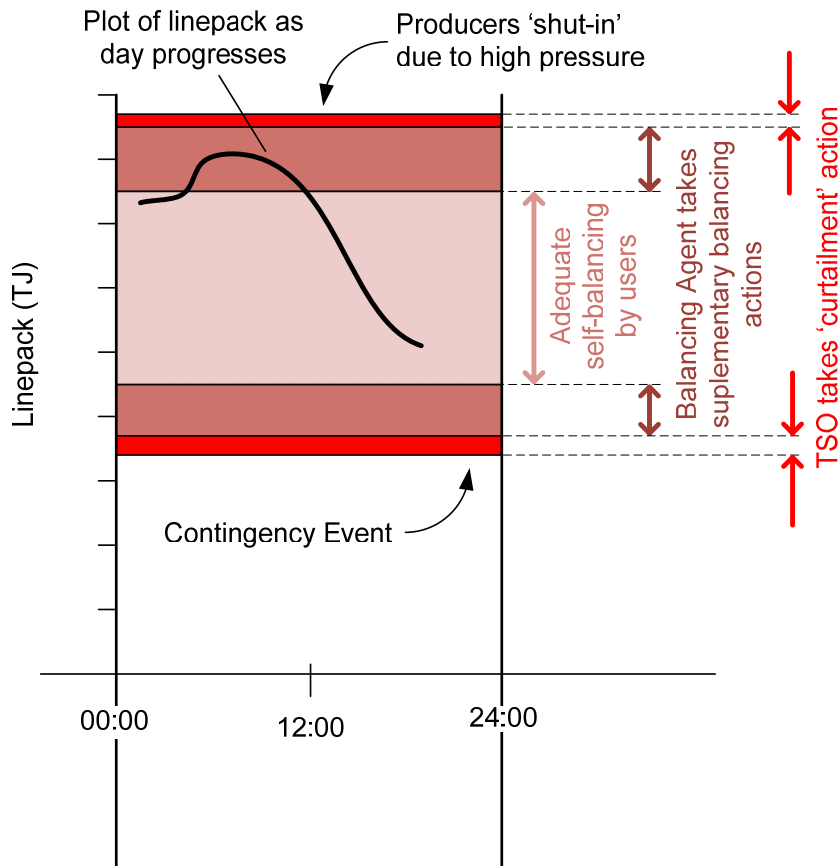
Contact commented that Gas Industry Co did not sufficiently define ‘pipeline users’ in the Options Paper. They noted the MPOC appropriately assigns responsibility for balancing to Welded Parties (rather than Shippers, as in the VTC). Also, Contact considered that ERGEG Principle 1 offers a better statement than Gas Industry Co’s of who is primarily responsible for balancing.

Gas Industry Co comment

Gas Industry Co notes that submitters generally agreed that users should have the primary obligation to balance. Initially this obligation will be discharged through forecasting expected gas requirements in good faith. Then, when there are unanticipated variations in supply and demand, the Balancing Agent, as the agent of the users, will maintain the aggregate balance of the pipeline through the buying and selling of balancing gas. Where such commercial arrangements fail, the TSO will stand ready to take curtailment actions.

If the balancing market works well, it will send price signals to users about the costs of balancing, which will allow each user to select the most efficient (lowest cost) strategy for managing its own position. This strategy may involve investment in better forecasting, or additional telemetry, interruptible demand, more flexible supply arrangements; or users may decide it is most cost effective to rely solely on the Balancing Agent to manage unanticipated variations in supply and demand.

Figure 3 of the Options Paper (reproduced below) attempted to illustrate the division of balancing responsibilities. Gas Industry Co still believes that it is a useful representation of where responsibilities should lie in an efficient balancing regime.



In relation to the use of *force majeure* (FM), Gas Industry Co's preliminary view is that it not appropriate in relation to balancing arrangements. Whether imbalance is caused by reasons within a user's power to control or as a result of an FM, the imbalance must still be managed. If a user could call FM to avoid meeting the resulting balancing costs, such costs would need to be socialised. This would not be an efficient outcome.

5.2 The residual balancing role

What the Options Paper said

In the New Zealand gas market, there are good reasons to expect that residual balancing actions will be needed despite individual users attempting to balance. Retailers have imperfect information on their daily demand and are therefore unlikely to balance their positions all of the time. Gas Industry Co's view is that balancing should be the responsibility of individual users in the first instance. However, some party must stand ready to inject or remove gas from the pipeline to avoid interruptions to transmission services when individual actions fail to maintain the overall balance of the pipeline.

Gas Industry Co suggested that, as far as possible, commercial arrangements should manage the pipeline balance, but that the final responsibility for ensuring physical security should be separate, and lie with the TSOs. It suggested that an independent Balancing Agent is better placed to manage the impartial buying and selling of balancing gas. Transmission codes would then require TSOs to provide curtailment options when commercial arrangements fail.

Section 5.2 of the Options Paper assessed whether one Balancing Agent is better than two (the current situation); and, if so, whether that single Balancing Agent should be independent of Vector and MDL.

Gas Industry Co's conclusion was that a single independent Balancing Agent is likely to be the best option for the industry. It would provide:

- a means of managing both pipeline systems as a whole (greater harmonisation);
- a higher level of efficiency in the balancing market; and
- the ability for users to hedge against balancing price risk.

Gas Industry Co estimated an independent Balancing Agent would need to reduce balancing costs by at least \$0.5 million/year to be justified on a cost basis. This seems readily achievable given this is only 5 percent of the estimated \$10 million/year cost of purchasing balancing gas. There are also intangible benefits, particularly the removal of conflicts of interest and improved transparency.

The Options Paper asked submitters to state whether they agree there should be a single independent Balancing Agent.

What the submissions said

Five submitters agreed in principle there should be a single independent Balancing Agent, but qualified their support for this idea. Contact, New Zealand Steel, and Vector thought that Gas Industry Co needed to clarify the role of the Balancing Agent (would it be limited to procuring balancing gas or would it extend to managing the pipeline?). Contact and New Zealand Steel were concerned about the cost of establishing an independent Balancing Agent. They thought the same benefits could be achieved by selecting the Balancing Agent through competitive tender, and setting performance standards and disclosure requirements. Vector also thought the role should be contestable, but didn't think there is any reason that a TSO couldn't do it (that is, there is no particular need for the Balancing Agent to be independent given the right mechanisms).

Genesis also agreed with the proposal, but suggested that current arrangements are already close to the desired solution. However, they supported changing the MPOC and VTC to give greater transparency, harmonisation, and, ultimately, unification of balancing processes across transmission systems.

MRP had no objections to the idea of a single Balancing Agent, if it improves the economic efficiency of pipeline balancing. However, they recommended reviewing the assumptions behind this proposal. The removal of the Legacy Provisions from the MPOC in December 2008 resulted in significant changes in pipeline balancing. Only when these changes are fully understood should Gas Industry Co progress the proposal for a single Balancing Agent. Greater benefit could be achieved by giving priority to developing a solution for the daily allocation of retailers' mass market gas loads.

Three submitters (Greymouth Gas, MDL, and Nova) disagreed with the proposal to establish a single independent Balancing Agent. Greymouth Gas considered the theoretical argument presented in the Options Paper was not adequate; neither did the paper take into account quicker and more cost-efficient solutions. They also thought the cost benefit analysis was weak and economic issues, such as who would pay the costs, were not discussed.

MDL stated that balancing is an integral part of the TSO's ability to offer gas transmission services. It is difficult to see how gas balancing functions could be separated from the day-to-day management of the pipeline, who would be the 'neutral' party to do this, and how the arrangements would be funded. In addition, there are substantial questions of liability, in particular, whether the proposed agency would be able to indemnify MDL for costs or damages incurred if the balancing role was not performed to an adequate standard.

MDL also presented the following arguments against establishing a single independent Balancing Agent:

- TSOs must be able to operate their pipelines safely and efficiently and the residual balancing function is part of this responsibility. It is incorrect and dangerous to assume that balancing can be separated from other tasks governing the physical security of the pipeline.
- MDL has already implemented measures to ensure its balancing operations are independent, neutral, efficient, and transparent.
- In effect, there is one Balancing Agent now.
- As a matter of principle, a TSO's sovereignty over its asset should not be infringed without compelling reasons.
- The ERGEG principles assume the TSO is responsible for balancing its pipeline.
- A regime in which a Balancing Agent is governed by regulation will result in a system that is inflexible and costly.

Nova thought a separate Balancing Agent is likely to lead to additional costs. In addition, it may not have the same incentives as users. Nova stated its preference that the TSO undertake the balancing

role, but subject to rules to protect against conflicts of interest and ensure the right incentives regarding operations and balancing actions.

Gas Industry Co comment

Gas Industry Co notes the general misgivings about the proposed 'independence' of the Balancing Agent, particularly in relation to the cost of achieving this. We also note the reservations of a few parties about formalising the existence of a single Balancing Agent. However, we note that there appears to be acceptance that a single balancing *regime* is needed.

Gas Industry Co accepts submitters' desire to minimise costs. We also acknowledge the general view that MDL is already acting as the single Balancing Agent for the whole pipeline system, and that there appears to be a level of satisfaction about the service it is currently providing. Our responsibility, however, is to be confident that balancing is being achieved efficiently, including governance arrangements that ensure stable and enduring pipeline balancing.

While there may be general satisfaction with the progress of MDL's balancing arrangements and service provision in recent times, this may be a fortunate coincidence of skilled personnel and the absence of major legal challenge. However, we are aware that good progress has been made by MDL in improving balancing arrangements, and we are keen to ensure that these advances are not lost.

Gas Industry Co acknowledges and commends MDL's Balancing Agent's efforts to develop a market for balancing gas, and MDL's wish to retain the balancing role, at least for its own pipeline. However, we note that the MPOC contains few protections to ensure that the Balancing Agent will conduct balancing operations in a way which is consistent with Gas Act objectives. If such protections were built into the MPOC, it would need to be done in a way which would ensure that they remain. This may require regulation.

6

Design features under review

Sections 6 and 7 of the Options Paper described the elements of the Gas Industry Co's proposal that need further investigation, and provided a preliminary assessment.

6.1 Balancing gas procurement options

What the Options Paper said

Sourcing or disposing of balancing gas creates a 'market' for balancing gas. The balancing market is likely to be for immediate delivery of gas. It is therefore generally different from the New Zealand Gas Exchange, which is a day-ahead market. In a balancing market, the Balancing Agent could secure flexible contracts in advance or operate a spot market. The issue is how to best use the many, but possibly limited, sources of flexible supply and demand while sending marginal cost price signals to users.

One option for the Balancing Agent is to enter into a portfolio of flexible contracts with 'put' and 'call' options. Contracts are attractive in that they can stabilise balancing charges, resulting in less risk for mass market retailers. Another option for the Balancing Agent is to purchase gas on a spot market. Pooling all available flexibility in a daily tendering process or spot market is likely to achieve lower balancing cost.

Gas Industry Co expects that users will secure contracts for flexibility but proposes that the Balancing Agent provide a short-term market to ensure that all spare capacity is pooled. This does not prevent the Balancing Agent from securing term contracts if required.

The Options Paper noted that a spot market appears to create an unknown and uncapped risk in the price of balancing gas. It acknowledged users' concerns about the risk of exposure to an uncertain balancing cost—however, a spot market also offers a mechanism for users to hedge the risk associated with balancing charges.

Section 7 of the Options Paper included an assessment of the balancing gas procurement options. The two key objectives for gas balancing arrangements formed the basis of this assessment (refer to section 3 of this paper beginning on page 15). Gas Industry Co concluded spot procurement appears attractive. The advantages of an on-the-day balancing spot market include:

- maximising the flexible capacity available by enabling spare capacity not used in setting nominations to be subsequently offered into the balancing market, hence increasing liquidity and lowering overall balancing costs;
- lowering barriers to users participating in the balancing market (so that barriers are lower than those necessary to enter a fixed-term contract for flexibility);
- balancing charges reflecting the marginal cost of flexibility at the relevant time, hence providing more efficient signals for investment in flexibility and preventing arbitrage⁴; and
- the ability for users to hedge their cash-out price risk by participating in the spot market.

Disadvantages of an on-the-day balancing spot market include the risk that the smallest pipeline users will find participation too costly. They may need to buy secondary hedging products, perhaps from competitors.

The Options Paper asked submitters to state whether they agree with the preliminary assessment of balancing gas procurement options.

What the submissions said

Overall, submitters disagreed with the preliminary analysis of balancing procurement options, mainly because they thought current arrangements could potentially meet requirements. We think this disagreement arises from Gas Industry Co's mis-communicating our conception of a 'spot market'. We discuss this in the 'comment' section below.

Contact suggested the objectives in the Gas Act and GPS would offer a better basis for assessing balancing procurement options. The analysis offered is simplistic and should also include the *status quo*. In addition, it is unclear why the Balancing Agent should be limited to either one or the other of a portfolio of contracts or a spot market—a combination would offer the greatest likelihood of achieving lowest cost balancing. Contact felt that the arrangements MDL have put in place are close to the desired objectives. Given the investment already made in these arrangements, they warrant further development.

Genesis commented it is wary of the risks of designing an ideal gas market in the abstract and then entrenching it through regulations and a Balancing Agent service provider agreement. In effect, the MDL commercial operator is already running an on-the-day balancing market. The value of the current arrangements is that they can adapt to changes in the gas market.

⁴ For example, setting the balancing price ahead in a term contract for flexibility will invariably result in times when the value of spot gas exceeds the imbalance price. The Balancing Agent would then be the cheapest source of supply, and flexibility could be used up in providing base gas supply requirements rather than providing a back-stop.

MDL thought this section of the Options Paper does not reflect the recently revised Maui Pipeline Balancing Instructions. Current procurement methods may well meet market needs if developed as intended.

MRP cautioned that the proposal for a Balancing Agent using a spot market depends on a so-far-unproved liquidity in a secondary spot market from a relatively small pool of suppliers. The current MDL arrangements should be considered as a procurement option for a Balancing Agent as well as a spot market. They provide a degree of price certainty, transparency, and flexibility. Nova also thought the current arrangements appear to be a valid means of balancing gas procurement that benefits from the dynamic attributes of the proposed spot market.

Vector was of the view that a spot market provides only a secondary market to trade gas and alone is unlikely to achieve physical balance. The Balancing Agent needs a suite of balancing tools to provide cost effective physical balance of the system. Vector expressed concern that a spot market could have high transaction costs in New Zealand's small market. There would also be scope for larger players to exercise market power by acting as price-setters and raising prices to their advantage. The balancing work programme should begin with a robust cost benefit analysis of each option.

Greymouth Gas did agree with the preliminary assessment of procurement, but thought much more could be achieved by discussions between the TSOs and the pipeline users. They suggested a preliminary assessment of balancing procurement options should occur irrespective of whether there is a single independent Balancing Agent or the *status quo* continues.

Gas Industry Co comment

As noted above, Gas Industry Co infers that submitters' disagreed with the preliminary analysis of balancing procurement options because we did not communicate well our conception of a 'spot market'.

We see a spot market as offering and clearing on-the-day quantities and prices of balancing gas, reflecting all available capacity. In contrast, term contracts set quantities and prices ahead of time, so that capacity is locked in. We emphasise that our proposed spot balancing market does not exclude term contracts. It does, however, require that term contracts are tested against a spot market to determine which source of gas offers the least cost. Where the spot market has sufficient liquidity, it becomes the preferred mechanism, because term contracts remove capacity and flexibility from the overall market.

Submitters observed that MDL is already running a market close to an efficient spot market. Gas Industry Co agrees and is encouraged by this development; but we must consider whether the MDL balancing market is as efficient as it could be. In particular, an efficient market would:

- include all available capacity (such as that connected to the Vector system);
- send efficient price signals to users (efficient prices being the marginal cost of balancing to both supplier and causer); and
- enable users to manage price risk.

Gas Industry Co also wishes to establish if the current MDL 'spot' market liquidity is proving sufficient for the required security of supply.

Gas Industry Co notes submitters also had differing interpretations of 'hedging'. We see hedging as the ability of users to participate in the spot market. For example, consider a user who thinks it might be in negative imbalance on a given day and risk cash-out by the Balancing Agent. It can hedge its price risk by offering gas to the Balancing Agent on the spot market. Should it then be in imbalance, it can then either self-balance (if it was aware of its position) or rely on the Balancing Agent. It would be protected with respect to cost, because the Balancing Agent would have access to the lowest cost gas in the market. This marginal price would be either the user's offer, or a lower-priced offer. The user has limited its price risk by receiving gas at a price equivalent to its value for gas or cheaper. This does not require the user to know the extent of its imbalance (or whether it has an imbalance at all).

6.2 Daily allocation options

What the Options Paper said

Delayed meter reading in the mass market and the allocation process mean that some users do not know their allocated daily balance position until after the end of the month. Delayed information makes it difficult for users to manage imbalances on the day they occur, and creates a risk of incurring significant cost if they are cashed out.

Possible solutions to the problem of delayed information for some users include:

- leave industry-wide arrangements as they are and allow individual users to choose how much to invest in improving their information systems, and how much to rely on residual balancing (*status quo* option);
- provide some improvements to the industry-wide arrangements, but otherwise leave individual users to manage their affairs (modified *status quo* option); or
- rather than using the (quite inaccurate) initial allocations for allocating balancing costs, apply an alternative algorithm that can be applied daily, rather than monthly (daily allocation option).

Gas Industry Co's preferred option is to determine each user's daily allocation of gas gate deliveries for balancing purposes (the 'balancing allocation') from earlier market shares (historical profiles). The balancing allocation would be made in time for the user to self-balance and avoid being cashed out. It should be possible to provide the information by 4pm on the day after gas flow. However, whether this is practical and efficient, and can be justified by a cost benefit analysis, is yet to be determined.

The Options Paper included an assessment of three daily allocation options. The first was replicating the current month end processes every day. The second was additional centralised data gathering supporting a daily allocation. The third was to run an historically-based algorithm every day. Gas Industry Co considered the third approach is likely to be the best daily allocation option. However, it accepts that further analysis is required.

The Options Paper asked submitters to state whether they agree with the preliminary assessment of daily allocation options.

What the submissions said

Contact agreed that it is possible to determine daily allocations for delivery points without time-of-use metering from agreed algorithms with corrections as metering information becomes available. However, it is necessary to separate time-of-use daily gas before algorithms can be run to make daily allocations. MRP also stated that all time-of-use volumes must be accounted for before carrying out any daily allocation of mass market volumes.

Contact thought that a possible barrier to the proposal is that larger retailers have already begun investing in systems and data collection and are therefore unlikely to want to contribute to centralised data collection. Once the industry has discussed the merit of centralised daily allocation, Gas Industry Co must consider how to recover the cost of data collection.

Genesis agreed the third option (historically-based algorithm) is the most promising of those canvassed. This option could be enhanced with a temperature adjustment algorithm and applying it to daily published Vector gas gate volumes net of any time-of-use data voluntarily submitted by retailers.

Greymouth Gas agreed with the conclusion that running an historically-based algorithm every day is likely to be the best daily allocation option. However, several issues need to be considered, including: how to deal with corrections, modification of gas transfer agreements, and cost recovery.

Nova suggested it would be useful to assess different allocation methods against actual historical data to test accuracy. Issues concerning corrections would need to be resolved.

Vector acknowledged that mass market retailers are unable to accurately determine their imbalances in real time and that the arrangements for allocation must take this into account. Vector's solution is to allocate balancing costs to large station Shippers first. Mass market retailers would then be exposed to balancing costs only where balancing actions exceed large Shipper imbalance positions. Since one element of Vector's proposal is to remove tolerances, this approach effectively allows the pipeline flexibility to flow through to mass market retailers. Also, since this approach would reduce mass market Shipper balancing transactions, the development of daily mass market allocation might not be justified. Gas Industry Co should assess the improvements that could be expected from Shippers to large stations before developing detailed solutions. Vector questioned why Gas Industry Co did not fully consider its proposed approach to allocation. Gas Industry Co's proposal would be complex and potentially costly, for a range of reasons.

Gas Industry Co comment

Gas Industry Co acknowledges the concerns about daily allocation. We have not yet formed an opinion on whether daily allocation is effective, efficient and passes cost benefit analysis. However Gas Industry Co sees significant merit if daily allocations can be achieved efficiently. This is our rationale for proposing that the daily allocations be fully investigated.

Some submitters suggested that daily allocations should be progressed in priority to other work streams, because it has the potential to improve balancing outcomes and reduce the need for further intervention. Gas Industry Co thinks this is unjustified. We are not convinced that the potential benefits from daily allocations are sufficiently certain, and also consider that other balancing issues also need to be addressed.

Gas Industry Co notes the views that time-of-use data is needed to effect daily balancing. This issue highlights the potential complexity of daily allocations and indicates there are issues to resolve before we can rely on this strategy, which may be too costly to implement even in part.

6.3 Extended nominations options

What the Options Paper said

The Options Paper discussed Vector's extended nominations proposal. It noted that Gas Industry Co's main concern with the proposal was the possible cost of implementation. While further analysis is required, Gas Industry Co's initial views were that:

- some aspects of the proposal are already part of Gas Industry Co's preferred option;
- some aspects are implicit in the preferred option; and
- some aspects should be given further consideration.

The Options Paper asked submitters to state whether they agree with the preliminary assessment of daily allocation options.

What the submissions said

Four submitters felt Vector's proposal warrants further investigation. Contact supported the fundamental aspects of Vector's proposal, but thought some aspects were unnecessary or undesirable. Most of the key issues could be achieved by allowing those gate stations on the Vector pipeline with access to daily metering data to act as if they were delivery points on the Maui pipeline for the purposes of balancing. This seems readily achievable and would provide those parties with access to the full range of balancing tools currently available. Contact recommends that Gas Industry Co should evaluate an extended nominations regime and how that might be best implemented.

Greymouth Gas agreed with Gas Industry Co's analysis in section 7.3 of the Options Paper. They see Vector's proposal as extensive and possibly introducing unforeseen issues. They stated there may be merit with the proposal, but it only skirts around the wider balancing issues. They submitted that Vector's proposal be considered alongside other 'easy wins' and other *status quo* options.

MRP also agreed Vector's proposal needs further evaluation. They did not regard it as desirable in its current form.

MDL thought there are limited benefits to Vector's proposal. However, they suggested an interim step could include extending the Maui nomination regime to large industrial users on the Vector system. This could be cheaper and more achievable over a shorter period, and given that industrial gas users account for some 90 percent of observed demand, this could have a significantly positive impact on the existing balancing regime. MDL agreed further analysis of an extended nominations approach is warranted.

Two submitters had reservations about the proposal. Genesis shared Gas Industry Co's concerns and also noted some additional concerns. Nova did not see any merit in pursuing Vector's proposal, especially because it promotes discriminatory treatment of end users.

Vector expressed concern that Gas Industry Co has not given proper consideration to their proposal. They commented that most of the Options Paper points to a number of solutions the Gas Industry Co would like to progress despite its acknowledgement on page 39 that 'further analysis of the [Vector] proposal is required.' Vector's view was that it is inappropriate to make an initial conclusion to discount a proposal before it has been fully considered. Vector was also surprised to see the Gas Industry Co characterise the option as the 'extended nominations' option, because nominations are only one aspect of the option.

Vector did not consider that the concerns raised by the Gas Industry Co on pages 38 and 39 of the Options Paper are well-founded.

Gas Industry Co comment

Gas Industry Co notes the range of views about Vector's proposal. Like many submitters, Gas Industry Co sees potential merit in fundamental redesign of balancing arrangements on the Vector pipeline. We note the comments of those submitters concerned that fundamental regime change would be expensive and who considered there are other options that are more achievable. This reinforces Gas Industry Co's belief that it would be wrong to assess the benefits of Vector's proposal (once it is sufficiently well detailed to cost) against the *status quo*. The proposal and related OATIS change are likely to take several years to implement. It is not reasonable to assume that no improvements to the current arrangements would occur in that time.

Submitters suggested several ways to achieve outcomes similar to the Vector proposal, with less change. These included:

- requiring separate nominations on the Vector regime;
- moving Maui Welded Points downstream (extending the Maui regime over the Vector network);
and
- creating virtual Welded Points upstream of Vector Welded Parties on the existing Maui regime.

Although less extensive than Vector's proposal, each of these suggestions involves significant change and warrants careful analysis. Gas Industry Co considers it worthwhile exploring these suggestions further.

7

Gas Industry Co's proposal

Section 8 of the Options Paper outlined Gas Industry Co's proposal for improving gas balancing arrangements and the further work that is required to refine it.

7.1 Essential components of Gas Industry Co's proposal

What the Options Paper said

Gas Industry Co's recommendation is a hybrid approach including:

- establishing an independent Balancing Agent function involving a daily tendering approach for sourcing balancing gas, possibly developing into a spot market platform;
- commissioning an independent expert review of pipeline tolerances;
- changing the MPOC to introduce effective daily balancing, allow for real time balancing costs, and establish a damages regime for 'over-pressure' situations;
- investigating the feasibility of daily allocation options; and
- investigating the feasibility of extended nomination options.

The Options Paper asked submitters to state whether they agree with the proposed hybrid approach.

What the submissions said

Submitters generally agreed with the broad direction of Gas Industry Co's work. Five submitters noted their agreement with elements of Gas Industry Co's general approach, although none gave unqualified support for the hybrid model. Submitters varied in their views about which aspects of the hybrid model should be progressed, as described in earlier sections of this report. Most submitters, however, did not support establishing an *independent* Balancing Agent (refer to section 5.2 on page 27 for a discussion).

Submitters also raised other issues, which included concerns about costs. Contact suggested Gas Industry Co needs to provide a cost benefit analysis for each significant aspect of the project. MRP

also expressed concerns about the costs and benefits of an independent review of the pipeline tolerances.

New Zealand Steel was uncertain about the hybrid model. However, along with Contact, they supported an incremental approach to making improvements.

Genesis and Vector disagreed with the hybrid model. Genesis didn't support further work on the extended nominations proposal and thought the substance of the proposed MPOC changes is wrong (they did, however, support an independent expert review of tolerances and further work on excess daily imbalance positions). Vector stated their belief that a more effective approach would be to first develop an overall design framework for the balancing regime. Gas Industry Co's proposal sets out specific design details, and considers them in isolation. It should begin by taking a holistic approach to developing high-level options.

Gas Industry Co comment

Like Vector, Gas Industry Co is concerned that there is a coherent framework for balancing regime changes, or at least a clear direction for change. Perhaps the term 'hybrid model' was unfortunate because it suggests a haphazard mix of components. Rather we wished to convey the idea that there was a mix of approaches; such as code changes, expert review, further investigations, and the possible introduction of regulation. However, the overall framework is clear, and has become more clear through our consideration of submissions. Our view is that the framework is a single unified balancing arrangement applicable to both transmission systems, and to all system users, with the following features:

- obligations on users to maintain balanced positions;
- tolerances which, in aggregate, do not exceed 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.

7.2 Further work on the proposal

What the Options Paper said

The Options Paper set out some aspects of Gas Industry Co's preferred solutions that can be pursued independently.

These include MPOC changes to:

- enable back-to-back cash-out to reduce the socialisation of balancing costs;
- allow for balancing gas prices to reflect the cost of efficiently procured short-term flexibility; and
- allow users to claim damages where scheduled quantities cannot be flowed as a result of other users being in positive imbalance (the 'over-pressure' situation).

These changes would be progressed through the MPOC change request process.

Other changes are:

- develop daily allocation options;
- develop extended nomination options; and
- establish Balancing Agent functions.

The Options Paper asked submitters to state whether they agree with the proposed work programme.

What the submissions said

Most submitters expressed general agreement with the work programme, but had concerns with some aspects of the programme, or suggested modifications.

Contact wanted Gas Industry Co to explain how the issues raised in the Issues Paper are captured in its proposal. They felt all changes should be subject to a cost benefit analysis and evaluation

against the Gas Act and GPS. The work programme should identify an implementation method that builds on existing arrangements and minimises cost. They doubted that the proposed timelines are realistic. Contact also observed the purpose of the work is to implement improvements to balancing arrangements (not simply report on the issues). Gas Industry Co needs to develop a mechanism to ensure timely implementation, at least cost, of the beneficial parts of the proposal.

MDL preferred not to see the regulation of the Balancing Agent function, but agreed with many of Gas Industry Co's proposed tasks. They believe that many of the objectives are unlikely to be achieved without substantial changes to the current MPOC provisions. They agreed that these objectives point to the introduction of a balancing system that requires on-the-day cash-out. Apart from the balancing system, MDL suggested other areas of work:

- revising allocation of tolerances for the Maui pipeline; and
- upgrading provisions for allocating and collecting balancing gas charges from pipeline users outside the Maui Pipeline system.

MRP agreed with the proposed development of daily allocation/extended nominations options with an implementation date of 1 October at the latest. Although they agreed in principle with establishing a single independent Balancing Agent, they did not support implementing this function now. They recommended reviewing the current situation to ensure that a single Balancing Agent is still considered the best way forward.

New Zealand Steel thought work should be staged according to its physical effect on pipeline balancing.

Nova suggested the following amendments to the work programme:

- remove or put on hold the extended nominations option;
- add establishing rules/regulations regarding balancing actions to be performed by TSOs which may include requiring the Vector TSO to use the balancing service provided by the MDL TSO first.

Genesis disagreed with the work programme. Greymouth Gas also disagreed; they felt that recent changes in the industry should be allowed to consolidate before work on an independent single Balancing Agent begins.

Gas Industry Co comment

Gas Industry Co notes that submitters generally agreed that costs should go to causers and balancing costs should be minimised. We comment, however, that efficient balancing arrangements minimise all balancing costs, not just those associated with the Balancing Agent.

Gas Industry Co's aim is to direct costs to causers. It is proposed this is achieved through targeted MPOC changes to ensure cash-out is back-to-back with a balancing transaction (in terms of both quantity and price). The aim is to avoid socialising costs or creating additional costs through either delayed cash-out or automatic cash-out when a tolerance is breached.

A further aspect of Gas Industry Co's proposal is to ensure balancing gas is sourced efficiently. The price should reflect the marginal cost of supply, which sends appropriate and efficient price signals to the market to invest in supply or information systems. Such systems would also enable users to manage price risk by participating in the market. We accept the views of submitters who noted that improvements made by MDL since the Options Paper was issued have markedly improved the operation of the balancing procurement market.

Gas Industry Co sees merit in daily allocations and fundamental regime redesign regarding nominations and imbalance. But we agree there is insufficient design, optimisation, and cost benefit analysis completed to commit to these at present.

Therefore Gas Industry Co plans to:

- review Maui tolerances, but seek all reasonable opportunities to avoid duplication of effort with MDL's own tolerance review;
- review the efficiency of the MDL balancing market;
- investigate further the daily allocation option;
- investigate further the extended nomination (fundamental redesign) option; and
- investigate further the concept of a single Balancing Agent (in light of the review of the MDL market efficiency).

Gas Industry Co fully accepts Contact's concern that the objective is to improve balancing arrangements, and not to simply report on the issues.

8

Next steps

8.1 Transmission Pipeline Balancing Advisory Group

Gas Industry Co will continue to work with the Transmission Pipeline Balancing Advisory Group (TPBAG), which comprises technical experts from the industry who can provide advice to Gas Industry Co on the technical and commercial aspects of balancing arrangements.

TPBAG will provide a forum to discuss balancing design options and frameworks. The group will not be a substitute for wider industry consultation or Gas Industry Co's other consultation responsibilities.

8.2 MDL and Vector

Gas Industry Co is concerned that Vector is considering terminating its interconnection agreement with MDL. The related arrangements—OBA and BPP—are central features of current balancing arrangements.

Section 22.9 of the MPOC would permit Vector (as a 'Welded Party') to terminate the interconnection agreement on 90 days' notice. If notice of such a termination is given, Vector and MDL would need to agree alternative arrangements for interconnection. Such a change would require consequential changes to the Vector Transmission Code and many related gas trading arrangements. This would be costly and disruptive to commercial arrangements in the industry.

Gas Industry Co will meet with MDL and Vector to explore how this situation can be managed.

8.3 Further assessment of options

Through the processes discussed above, Gas Industry Co will refine its options analysis and present a further assessment of the balancing options for consultation. It is intended to advise the Minister on this matter before the end of the calendar year.

Glossary

balancing	The management of linepack to ensure that it remains within acceptable operational limits.
Balancing Agent	The party responsible for providing residual balancing services, including buying and selling 'balancing gas' in order to manage unplanned variations in linepack.
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 forcible sale or purchase of gas by the TSO to resolve an outstanding imbalance position.
Contact	'Contact Energy Limited'
damages	The loss to a users business caused by another user breaching its obligations. A damages claim is a claim for compensation for costs incurred.
delivery point	An interconnection point to a pipeline where gas is taken by the interconnected party (known as the 'welded party' in the MPOC).
ERGEG	'European Regulators Group for Electricity and Gas'
Genesis	'Genesis Energy Limited'
GPS	'Government Policy Statement'
ILON	'Imbalance Limit Overrun Notice' is a defined notice under the MPOC where MDL notifies a welded party that it wants excess ROI resolved (that is, gas parked or lent in excess of the Running Operational Imbalance Limit).
imbalance	Generically this means the flows into the pipeline do not match the flows out of the pipeline. This can be 'operational imbalance' in the MPOC which is the difference in scheduled flows and actual flows at an interconnection point. This can also be the difference between shipper receipt and delivery quantities in both the MPOC and VTC (where it is called 'mismatch'). A positive imbalance is

	one that increases linepack and a negative imbalance is one that decreases linepack.
Incentives Pool	A mechanism in the Maui transmission regime to ring-fence and allocate damage costs via a trust account.
Issues Paper	Transmission Pipeline Balancing, released in August 2008.
linepack flexibility	Flexibility in the level of linepack over and above that needed to transmit scheduled gas and set aside for security of supply, which is linepack flexibility potentially available for balancing.
legacy gas	The Maui gas contract for delivered gas over the Maui pipeline that pre-existed Maui open access and retained its special rights.
linepack	The total amount of gas in a transmission pipeline at a point in time.
MDL	'Maui Development Limited'. A Maui joint venture company that operates the Maui pipeline (among other things).
MRP	'Mighty River Power'
mismatch	A shipper's allocated receipt quantities less their allocated delivery quantities. A mismatch represents an imbalance between inputs and outputs on the pipeline. A positive mismatch is an increase in linepack and a negative mismatch is a decrease in linepack.
MPOC	'Maui Pipeline Operating Code'
nomination	A request to the pipeline to transport a quantity of gas from a receipt point to a delivery point. On the Maui pipeline an 'approved nomination' is the agreed quantity by the shipper, welded party and TSO and represents the contracted transmission service. On the Vector pipeline nominations are not approved as such and are not binding.
Nova	'Nova Gas Limited'
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.

Options Paper	Options Paper on Transmission Pipeline Balancing, released in December 2008.
receipt point	An interconnection point to a pipeline where gas is injected into the pipeline by the interconnected party.
ROI	'Running Operational Imbalance'. A defined term in the MPOC for the aggregate of imbalance at a welded point over time and therefore represents the total gas parked or loaned from the pipeline at that point.
scheduled quantity	A defined term in the MPOC for the days confirmed and committed scheduled quantity for a welded party, which is the sum of approved nominations at the welded point.
Shipper	A user who has contracted for the TSO to transport gas (see TSA).
TPBAG	'Transmission Pipeline Balancing Advisory Group'
TSO	'Transmission System Owner'
Vector	'On Gas Limited, Vector Gas Contracts Limited, and Vector Gas Limited'
VTC	'Vector Transmission Code'
Welded Party	An interconnected party to a transmission pipeline, particularly on the Maui pipeline. These parties are contractually separate from Shippers and may or may not be the same entity as a Shipper.
Welded Point	A point at which the Maui pipeline connects to the infrastructure of a Welded Party.