memo

To	Gas Industry Stakeholders
From	Ian Wilson, Senior Technical Advisor, Gas Industry Co
Subject	Transmission pipeline balancing: 2006 -2014
Date	26 August 2014

This memo reminds stakeholders of Gas Industry Co's commitment to improve gas transmission pipeline balancing arrangements. It provides a summary of efforts to improve those arrangements during the past eight years. In essence, the first three years were spent analysing the issues, transitioning from legacy provisions and moving through the regulatory process leading to the 2009 Statement of Proposal setting out proposed Balancing Rules. Industry participants then lobbied Ministry officials arguing that they should be given more time to resolve the issues. Gas Industry Co and the Minister agreed to adopt a "wait and watch" approach, with Gas Industry Co reporting back after a year. The subsequent five years have been spent implementing various code changes in preparation for introducing back-to-back (B2B) balancing as an alternative to regulation. Gas Industry Co's recent reports to the Minister have, perhaps unwisely, been optimistic that an industry-led solution was close.

Recent industry discussions around the implementation of B2B, or a further step to daily cash-out, suggest to us that progress has stalled. We believe that the current arrangements have not changed substantially in the five years since our Statement of Proposal set out draft balancing rules to address the inefficiency and we acceded to industry requests to allow time for an industry-led solution to emerge.

Gas Industry Co remains committed to delivering on its regulatory objective: to provide an efficient, unified balancing arrangement for managing pipeline imbalance.

The history of balancing problems and efforts to improve arrangements is set out below.

June 2006: Transmission Access Issues Paper

Shortly after the inception of Gas Industry Co, it 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 2006 with a series of stakeholder interviews. At that time, open access had been offered on Vector's pipelines for over 10 years, and Maui pipeline open access had commenced on 1 October 2005. The two access regimes had significant design and operational differences and many concerns were raised by stakeholders about the individual regimes and their interaction.

In June 2006, Gas Industry Co released the *Transmission Access Issues Paper* (Access Issues Paper). Although it addressed all aspects of access, the main balancing related concerns were:

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

The 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 when industry had gained more experience of the new arrangements.

October 2006: Transmission Access Issues Paper - Analysis of Submissions

Submissions on the Access Issues Paper 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: Maui pipeline over-pressure incidents

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

These incidents were symptomatic of a failure of the commercial balancing arrangements resulting in producers who did not have compressors capable of injecting gas into the pipeline at much above 48 bar being at risk of shut-in (ie prevented from injecting scheduled quantities of gas).

Commercial Operator actions

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" (RPO). Of particular concern to some users were the adverse commercial consequences that would result if the orders were obeyed. 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 approach had the potential to injure innocent parties by forcing some Shippers into mismatch positions. 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.

MDL investigations

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 its own industry forums to avoid duplicating effort. Separate workshops focused on each aspect of balancing, as described below.

February to July 2007: MDL balancing workshops

Unaccounted for gas (UFG)

One MDL workshop considered UFG. It workshop 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.

Daily allocation

Another MDL 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 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. The conclusion was that daily allocation was therefore unlikely to improve balancing arrangements in the short-term.

Legacy arrangements

Another MDL workshop considered legacy arrangements that 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. No solution was found.

Balancing

The last MDL workshop of this series 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 solution emerged. The main issues considered were:

- the need for a diverse range of balancing sources;

- 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 pipeline users and operators. However, the process failed to clearly identify 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 the MDL System Operator. These initiatives involved the evolution of balancing instructions from MDL to its Commercial Operator and improvements to 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, including balancing. In March 2007, it issued the *Transmission Access Options Paper*, which evaluated four access framework options to resolve the problems identified in the 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.

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 concluded that:

- any UFG not offset by balancing gas bought or sold by the pipeline operator will appear as 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 appeared 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;
- since most of the UFG accruing on Vector Transmission pipelines was bought or sold through competitive tenders, 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; and
- 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.

October 2007: Vector Transmission Code introduced

Vector's open access arrangements were originally contained in standardised bi-lateral contracts, but during 2007 it developed a Vector Transmission Code (VTC). The VTC contained Vector's multilateral Shipper arrangements and progressively displaced the existing bi-lateral Shipper contracts. The VTC came into effect on 11 October 2007. In relation to balancing, the code provided for arrangements to obtain balancing gas by tender where time allowed. It also contained a detailed mechanism for allocating balancing cost to shippers; the Balancing and Peaking Pool (BPP).

October 2007: Transmission Access Statement of Proposal

Also in October 2007 Gas Industry Co released a *Transmission Access Statement of Proposal* that detailed the Light Regulation option that would comprise:

- regulations to specify the overarching requirements of transmission access;

- transmission system codes specifying standard terms (the detailed multilateral access arrangements); and
- negotiated arrangements agreed between a Transmission System Operator (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:

- each TSO would offer a balancing service;
- balancing services could be offered to Shippers or to Welded Parties;
- at inter-pipeline points, imbalances must be attributed to the TSO;
- each TSO must specify in its code how imbalances may be aggregated between users or across welded points before balancing charges are levied;
- each TSO would be responsible for any imbalances arising from own-use gas, unaccounted for gas or at inter-pipeline points;
- each TSO would account for its own imbalances as though it were paying for them on standard terms;
- each TSO would endeavour to minimise the costs of balancing associated with the purchases of balancing gas and balancing services;
- each TSO would procure balancing gas in an open and transparent way; and
- each 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.

July 2008: Transmission Access Framework pursued as separate work streams – including a Balancing work stream

In responding to the October 2007 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. On review, Gas Industry Co accepted that there was an unacceptable level of legal risk in pursuing the framework approach that the draft regulation proposed. Nonetheless, Gas Industry Co believed that the issues that the framework was designed to resolve still needed to be addressed. It decided to separate the framework 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.

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, but 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 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). The paper concluded that some aspects of the balancing arrangements were 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 sharing the costs among users rather than targeting it to causers).

These issues were subsequently debated in an advisory group and reflected in an issues paper.

April 2008: Gas Industry Co establishes a balancing advisory group

As an aide to developing effective policy, in April 2008 Gas Industry Co established the Transmission Pipeline Balancing Advisory Group, 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. In particular:

- MDL had introduced new balancing gas procurement arrangements and issued a new balancing instruction to its Commercial 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 Balancing 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 preventing effective balancing; and
- grouped and discussed design options for improved balancing arrangements.

Gas Industry Co concluded that core elements of the balancing regime were flawed. Its concerns were that:

- balancing provisions were unclear or difficult to enforce;
- the role of the Balancing Agent was unclear;
- users—especially mass market retailers—had poor information on their current imbalances;
- the balancing period extends over several days, because of the MPOC's Imbalance Limit Overrun Notice (ILON) arrangements and pricing lags;
- it was unclear to users how balancing costs were incurred and how cash-out prices were set;
- the lack of alignment between imbalance costs and cash-out prices;
- Maui and Vector pipelines could take conflicting balancing actions, adding to balancing costs and complexity;
- the complexity of balancing arrangements could give rise to unnecessarily high transaction costs; and
- tolerances might be too high in aggregate (compared with linepack limits) and were not allocated to those who value them most.

The conclusion was that the core elements of the balancing regime were flawed, and would not provide efficient pipeline balancing.

November 2008: Transmission Pipeline Balancing Issues paper - Analysis of Submission

The nine submissions on the Balancing Issues Paper reflected a general level of agreement that the issues where correctly identified. However, submitters felt that before further work was done, the issues needed to be described in more detail 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 direct 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.

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.

MDL, on the other hand, believed 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.

The Analysis of Submissions concluded that Gas Industry Co should continue to work alongside the Balancing Advisory Group 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

Further over-pressure incidents occurred on the Maui and Vector pipelines during a three to four week period in the summer of 2006/2007 and 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. In particular:

- 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 excess linepack; and
- possibly increased demand at Methanex.

In the event no problems were experienced.

December 2008: Removal of legacy provisions from the MPOC

MDL submitted an MPOC Change Request to Gas Industry Co on June 2008. The Change Request proposed deleting parts of the MPOC that related 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 and (in a supplementary submission) proposed further changes to MPOC to provide more robust balancing arrangements.

However, following consultation Gas Industry Co issued a final recommendation in October 2008 supporting the removal of the legacy provisions.

December 2008: Transmission Balancing Options Paper

The December 2008 *Transmission Balancing Options Paper*:

- defined the problems associated with gas balancing and explained why Gas Industry Co proposed to intervene;
- 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 required further investigation;
- made a preliminary assessment of the design features that required further investigation;
- outlined Gas Industry Co's proposal for improving gas balancing arrangements and the further work required to refine the proposal; and
- 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.

May 2009: 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, but 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 were 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 could 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 (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 the proposal it had put forward had not been adequately analysed by Gas Industry Co.

Other submitters preferred an incremental approach, but had different 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.

June 2009: MDL introduces Balancing Gas Exchange (BGX)

In the initial years of Maui pipeline open access the Commercial Operator maintained the overall balance of the pipeline by calling on flexible Maui gas supply arrangements provided by the pipeline owners. This facility was progressively replaced by more market-based arrangements including, in 2009, MDL instituting an online balancing gas market known as the Balancing Gas Exchange (BGX).

For pipeline users, the removal of the legacy balancing arrangments and the introduction of market-based balancing costs provided added incentive to improve their individual balancing performance. The resulting improvement reduced the amount of 'residual balancing' the pipeline operator needed to perform, as can be seen from **Figure 1**. In essence more balancing was being done by individual pipeline users, so the pipeline operator did not need to do so much residual balancing.

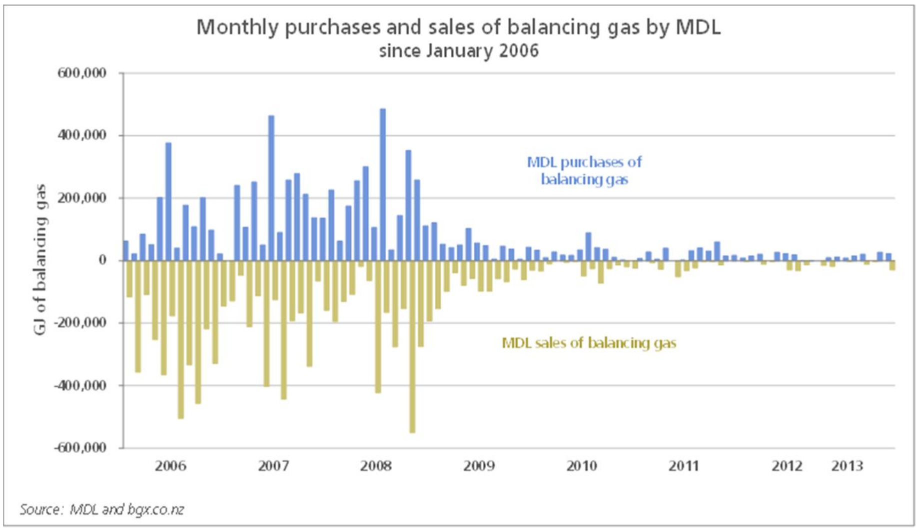

Figure 1 – Residual balancing on the Maui pipeline

The BGX also significantly improved transparency by displaying pipeline balance conditions and responses to MDL's calls for bids to buy or sell balancing gas. While the BGX improves the ability of the MDL to perform its residual balancing role, it does not have the functionality to allow pipeline users to trade gas with each other.

MDL's Commercial Operator did take some steps towards developing the BGX into a fully functioning gas trading market, but the initiative was not supported by industry participants and MDL withdrew its support for the project.

June 2009: Possible termination of Vector-MDL interconnection agreement

Since early 2009, Vector and MDL were in dispute over the allocation of certain balancing gas costs. Vector had not paid balancing costs claimed by MDL because Vector had not recovered those costs from its Shippers. Vector considered the root cause of these disputes to be the chronic failure of the wider balancing arrangements and advised Gas Industry Co that it was considering whether it should terminate its interconnection agreement with MDL.

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 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.

Gas Industry Co wrote to Vector and MDL in March 2009 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 Balancing Advisory Group, to update the group on Gas Industry Co's policy development work and get further input.

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.

July 2009: Transmission Pipelines Balancing Second Options Paper

In light of submission received on the May 2009 Options Paper and events that occurred since its publication, Gas Industry Co identified that there was a need to develop a further set of options. In July 2009, Gas Industry Co released the *Transmission Balancing Second Options Paper*. The paper presented four reasonably practicable options which Gas Industry Co believed to be appropriate considerations to improve the balancing market:

- a contracts based option, that could minimise the need for regulation;
- two 'prescriptive regulation' options, and
- a 'participative regulation' option that would be mandated by regulation but allow ongoing participation of the TSO's.

September 2009: Transmission Pipeline Balancing Second Options Paper - Analysis of Submissions

Ten submissions on the Second Options Paper were received. Views were divided on how Gas Industry Co should address balancing. In particular, Vector and MDL were at odds. Vector supported regulation while MDL advocated a contracts option with regulations being pursued in limited areas (if necessary). MDL outlined a work programme it intended to complete in order to show Gas Industry Co how it could meet Gas Industry Co's regulatory objectives without regulations. Many submitters supported MDL's view that some form of a contracts based option would likely result in most effective arrangements for industry. Several notified Gas Industry Co that good industry progress was being made and that within several months' improvements would be seen.

Many submitters expressed concern over the scope of balancing that had been identified by Gas Industry Co. In particular, submitters felt that the availability of user's information to effectively manage their positions should be addressed as well as nomination arrangements.

The majority of submitters agreed that the participative regulation option was reasonably practicable. However, many felt that it should only be pursued only if some form of the contracts based option proved unsuccessful.

September 2009: Industry Code Development (ICD) process launched

In response to industry views that a contract based solution to balancing problems was still possible, Gas Industry Co proposed a process to explore the possibility. The process was called the Industry Code Development (ICD) process and involved Gas Industry Co facilitation focussed industry meetings.

The objective of the ICD process was:

> To design and implement a unified balancing regime for the New Zealand gas transmission system that will avoid or minimise the need for regulatory intervention to achieve the relevant objectives of the Gas Act and GPS.
>
> (Industry Code Development process Terms of Reference)

October 2009: Statement of Proposal: Transmission Pipeline Balancing

In its October 2009 *Statement of Proposal: Transmission Pipeline Balancing* (Balancing SOP), Gas Industry Co acknowledged the ICD process and noted that the outcome of this process may impact on the final recommendation on pipeline balancing. However, it also noted that in the absence of a contractual solution, its preferred option for improving balancing arrangements was the participative regulation option described in the Second Options Paper. The participative regulation option allowed for TSOs to develop, consult on, and agree a "balancing plan" and submit it to Gas Industry Co for approval. The plan would need to comply with balancing rules, and if the TSOs could not agree, Gas Industry Co would develop the plan.

The Balancing SOP noted that if the scope and/or detail of the proposed rules changed significantly as a result of the ICD process, a further statement of proposal would be issued.

November 2009: conclusion of Industry Code Development (ICD) process

11 companies chose to participate in the ICD process and spent 10 days between September and November 2009 attempting to reach an agreement.

It was recognised from the outset that a successful process would require the active participation and cooperation of both TSOs. Regrettably, although the TSOs made several attempts to reach agreement on a complete, coordinated balancing regime, they were unable to present a common view to the group[1]. However, the group did reach substantial agreement on:

Balancing Agent (BA) role definition

Essentially the BA would buy and sell balancing gas on the Balancing Gas Exchange (BGX) to manage linepack within defined thresholds and perform the related commercial support functions. The agreement did not advocate a single BA for both pipelines, but it was anticipated that the MDL BA would be the only BA actively buying and selling balancing gas.

Operating procedures

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[1] The key differences between the Vector and MDL proposals were: (1) Treatment of nominations. MDL's solution proposed that in phase 1 there would be integrated balancing without interlinked nominations, which would not be introduced until later in phase 2. Vector's proposed solution required interlinked nominations in phase 1; (2) Liability. MDL proposed that the residual risk or liability associated with non-payment would be treated as follows: Large stations would be primarily responsible for liability, Vector would be primarily liable for own use gas, small stations, and mass market, and Vector would be secondarily liable for any unpaid or unallocated amounts. In contrast, Vector proposed that users should be responsible for the residual risk. (3) Who does the allocations to Vector pools. Under MDL's solution, Vector would continue to allocate to its pools, whereas under the Vector proposal, the Balancing Agent (MDL) would have a direct contract with each user and therefore be responsible for allocating to those users. The timing and sequencing of the two proposals also differed.

TSOs would develop a Standing Operating Procedure to describe how the linepack of the Maui and Vector pipelines would be managed in a coordinated manner.

Balancing gas procurement

MDL would develop an MPOC Change Request to provide for the BA to administer the BGX, to buy and sell Balancing Gas on a least cost basis, to set cap and floor prices, and to disclose information on market transactions.

BGX open to parties remote from the Maui pipeline

To maximise balancing market participation, Vector would introduce a VTC change to provide a daily nominations regime on its pipelines and provide OATIS users with visibility on the aggregate daily nominations and deliveries at all major receipt and delivery points and (where relevant) balancing pools. The BGX would then be open to users of the Vector pipelines.

Balancing gas cash-outs

Balancing gas cash-outs would only occur on days where the BA bought or sold balancing gas. Allocations of balancing gas would be in proportion to running imbalance positions, priced at the average procurement price for the day. Code changes would introduce a pay-now-dispute-later regime for balancing invoices, and adjust the prudential requirements on users accordingly.

Information, Audit and Disputes

There would be a general principle of transparency. MPOC and VTC changes would be introduced to provide:

- visibility on the volumes of transmission services purchased and the cost and revenue resulting from the balancing actions;
- an annual audit of balancing gas transactions, the terms of reference and results of which will be published;
- that any party may require a performance audit, the cost of that audit will be met by that party; and
- that balancing disputes to be resolved by an independent process, and be heard by an appropriately qualified authority.

In addition:

- the timing, number, and notice periods for intraday nomination opportunities would be periodically reviewed to ensure that pipeline users can effectively manage their balance positions;
- a process would be developed to allow users to signal their intention to reduce imbalance (that is, distinguish payback versus demand nominations);

- if a D+1 algorithm was developed to provide allocations closer to the 'interim' allocation than the 'initial' allocation, all gas deliveries would be allocated to MDL and Vector users on the day after gas flow using that algorithm; and
- once the prerequisites to participation in the BGX have been met, all participants would have access to the same tools as MPOC Welded Parties.

A Heads of Agreement describing a balancing regime was drawn up, but it was not signed by all participants, and some of those who did sign would only sign a document marked up with their preferred amendments.

Since there was no agreement, Gas Industry Co did not consider that a contractual solution could be considered as a "reasonably practicable option".

December 2009: Advice to Minister

In December 2009 Gas Industry Co advised the Minister of its intention to recommend that the participative regulation option be adopted. The letter also noted that few industry participants had commented in detail on the Draft Rules, so Gas Industry Co proposed holding workshops with stakeholders to review the Draft Rules and discuss implementation issues before submitting a formal balancing recommendation. In response, the Associate Minister requested that Gas Industry Co also consult the industry on a quantitative cost-benefit analysis before submitting its formal recommendation.

December 2009: MPOC Change Request

To avoid regulation, MDL took the initiative in December 2009 to propose an MPOC change to introduce B2B balancing. The essence of B2B balancing is that pipeline user imbalance positions are "cashed-out" when the Balancing Agent buys or sells balancing gas. It therefore aims to improve efficiency by targeting balancing costs to pipeline users responsible for causing those costs.

Before describing the December 2009 Change Request, it is worth noting that MDL had made a number of previous changes that related to balancing. They were:

- May 2008 – "Typos" Change Request;
- June 2008 – "Legacy" Change Request, to remove retrospective allocation;
- April 2009 – "ILON Notice period" Change Request, to reduce the minimum notice period for notification of mismatch prices; and
- May 2009 – "Payback Point" Change Request, to extend the definition to facilitate the introduction of a wholesale market.

In Gas Industry Co's contractual role of considering Change Requests, it analysed, consulted on and ultimately supported all of these Change Requests.

MDL's December 2009 Change Request, in addition to introducing B2B balancing, proposed additional and extensive amendments to the MPOC, including:

- an improved definition of the balancing operator's roles and responsibilities;
- improved information disclosure and audit processes;
- consultation on balancing procedures (and other operating procedures);
- removing Vector's preferential right to transport balancing gas on the Maui pipeline; and
- pay-now-dispute-later provisions.

Further complicating the Change Request was the inclusion of a number of matters unrelated to balancing, such as removing legacy provisions, and many minor and technical changes.

Considering the wide scope of the December Change Request, Gas Industry Co believed it would be difficult to approve the whole package unconditionally and sought independent legal advice on whether it could approve parts of the change request and reject others. The advice was that it could not.

Following extensive consultation, Gas Industry Co issued a final recommendation in August 2010 that did not support the Change Request, noting that:

> Gas Industry Co recognises that the December Change Request has the potential to result in an overall net benefit. However, the uncertainty as to whether those benefits will be achieved (in the absence of corresponding changes to the VTC) reduces the value of the December Change Request in the view of Gas Industry Co. Gas Industry Co's concerns are compounded by the complexity and broad nature of the changes proposed. While the assessment of the net benefit of the December Change Request is finely balanced, the overall conclusion is that the overall net benefit is not sufficiently certain for Gas Industry Co to support the December Change Request.

MDL's response was to develop a more focused Change Request, which was finally submitted to Gas Industry Co in October 2011 (discussed later).

April 2010: Supplement to the Statement of Proposal

Following on from the December 2009 advice to the Minister, in April 2010, Gas Industry Co issued a supplement to the Balancing SOP that set out:

- an update on developments since the Balancing SOP (such as MDL's December 2009 Change Request);
- a description of key changes made to the Draft Rules following further industry discussions (including a copy of the Draft Rules);
- implementation plans for the Draft Rules determined with stakeholder input; and

- a quantitative cost-benefit analysis of the Draft Rules (as requested by the Associate Minister).

The paper confirmed Gas Industry Co's decision to recommend the "participative regulation" option first described in the July 2009 Second Options Paper and later identified as the preferred option in the Balancing SOP.

September 2010: Further Advice to Minister – wait and watch

In response to industry lobbying, and MDL's commitment to introduce B2B balancing, officials of the Ministry of Economic Development considered that the industry should be given more time to reform before regulations were introduced.

On 16 September 2011 Gas Industry Co advised the Minister that it still believed that efficient, unified balancing was best achieved by participative regulatory option proposed in October 2009 SOP. However, in light of MDL's efforts and MED's preference to give industry more time to improve balancing arrangements, it proposed a 'wait and watch' approach. The Minister agreed that this was appropriate, and requested Gas Industry Co to review progress 'in a year or so'.

October 2011: MPOC Change Request

Gas Industry Co did not support MDL's December 2009 Change Request (substantially because it included a complex mix of balancing and non-balancing related changes). In response, MDL repackaged the Change Request so that proposed changes related substantially to B2B balancing. In April 2012 Gas Industry Co issued a Final Recommendation supporting the Change Request, and noted that:

> We wish to commend MDL on the initiative it has taken to improve balancing arrangements. We consider this to be a first (but significant) step towards delivering on the industry's promise to improve balancing without recourse to regulation.
>
> Since 2009, MDL has strived to resolve two major components of balancing reform – improved market arrangements for balancing gas (BGX2), and back-to-back allocation of balancing costs (B2B). In respect of BGX2, following successful design and testing, we understand implementation of the platform has come up against risk management issues for the joint venture, and discussions are taking place with third parties who may be better placed to address those. In respect of B2B, following an unsuccessful change request in 2009, the October 2011 Change Request proposes a more focused set of MPOC changes to achieve B2B.

In supporting the Change Request, Gas Industry Co requested MDL not to implement it until 1 June 2013, allowing time for other arrangements, such as the balancing cost allocation mechanism in the VTC, to be improved. In a cover note to its Final Recommendation it also observed that submitters had noted that the change should be accompanied by other balancing-related changes, including improved ability of all pipeline users to trade balancing gas, improved timeliness of downstream allocations, and extended requirements on users to make gas flow nominations.

October 2012: VTC Change Request

Vector proposed a change to the Vector Transmission Code (VTC) on 30 October 2012 to align the VTC with pending B2B changes to the MPOC. The proposed change did not receive the 75 percent support from Shippers necessary for it to be adopted. Vector appealed to Gas Industry Co, in its VTC appeals body role, to have the Change Request allowed.

Vector's proposed change comprised three parts. Two were to accommodate the introduction of B2B balancing and a Peaking Charge to the MPOC. The third was to limit the ability for Shippers to dispute balancing invoices Vector issues.

While submitters on the proposed change generally accepted the alignment with the pending MPOC changes, all submitters except Vector opposed the proposed removal of the right to dispute balancing invoices. However, on balance Gas Industry Co considered that the overall effect of the proposed changes would improve efficiency and therefore supported the Change Request.

February 2014: MPOC Change Request

In preparation for implementing its October 2011 Change Request, MDL subsequently proposed some minor changes in its Change Requests of December 2012 and March 2013. Both these Change Requests were supported by Gas Industry Co. The next substantive Change Request related to B2B was in February 2014, and mostly related to arrangements for MDL buying and selling gas to manage linepack. While substantially uncontroversial, submitters generally objected to certain words they believed could result in balancing arrangements being dictated by agreements outside of the MPOC. However, while Gas Industry Co's analysis concluded that these concerns were valid, they were not sufficient for Gas Industry Co to reject the Change Request "particularly when they are seen in the context of on-going changes to the MPOC balancing arrangements as the balancing arrangements continue to evolve". Our Final Recommendation was to support the Change Request, clearing the way for the implementation of the B2B Change Request.