SUBMISSION TO
GAS INDUSTRY COMPANY

on

Transmission Pipeline Balancing Issues

from

MAUI DEVELOPMENT LIMITED

12 September 2008

CONTENTS

1. Executive Summary

Maui Development Limited (**MDL**) welcomes the opportunity to provide comments to the Gas Industry Company (**GIC**) on the Transmission Pipeline Balancing Issues paper dated August 2008 (**Issues Paper**). We appreciate the time and effort that the GIC has put into the preparation of the Issues Paper.

In examining the issues and arguments discussed in the Issues Paper, MDL has concluded that as a transmission pipeline owner (**TSO**) it should state clearly the way in which it believes the issues discussed in the Issues Paper should be resolved. In doing so MDL has:

- Started from the ERGEG principles for good gas balancing practice;
- Set out conclusions that can be drawn from past experience with Open Access on the Maui Pipeline;
- Examined the specific areas of concern identified by the GIC;
- Set out in general terms the balancing measures that it believes are necessary to meet concerns expressed by the GIC and other industry parties; and
- Addressed in general terms the MPOC changes and transition measures necessary to introduce the measures recommended.

Like the Issues Paper, this submission tackles the balancing problem at a high level. A great deal more detailed work will need to be done to reach the objectives set out in this submission, much of it in areas outside MDL's immediate spheres of interest or control.

This submission does not address issues arising from the introduction of the proposed Critical Contingency regulations.

2. Definition of terms

2.1 Balancing

It is easy to lose sight of the primary purposes of pipeline balancing and balancing gas. As the Issues Paper puts it:

"*Pipeline balancing refers to the management of the inventory of gas in a pipeline, generally known as linepack".*

MDL agrees with this definition so far as it goes. It is notable that pipeline balancing is normally regarded as a function that needs to be carried out by the TSO, as the way in which it is carried out underpins the TSO's ability to offer contracts for the transmission of gas. This link is specifically recognised in Section 18.1.b of the MPOC and is consistent with ERGEG Principle 1.

Management of linepack is required because of pipeline imbalances, which are nearly all due to operational imbalance. It must be recognised that operational imbalances are not caused by the TSO but are the result of parties failing to maintain a balanced position when using the pipeline. While these must be compensated for in order to maintain the pipeline integrity and allow scheduled gas transmission to continue, the root cause of the problem does not lie with the TSO.

2.2 Balancing tools

There are three primary tools at a TSO's disposal as it carries out its pipeline balancing function:

i. Curtailment of gas injections into the pipeline, or gas removal from it, or both.

ii. Injection into or removal of balancing gas from the pipeline.

iii. Design of incentives for parties to flow gas according to schedule. These do not directly attack modifications to physical linepack inventory, but seek to change the behaviour of parties using the pipeline so that imbalances are reduced.

Day to day pipeline balancing is normally performed using balancing gas. It is possible to balance a transmission pipeline without a balancing gas supply using only curtailment, but this option is not considered further here. Neither does this paper consider actions that might be taken in the lead-up to a critical contingency event. These will be discussed as part of the consultations around the introduction of the proposed Critical Contingency regulations.

2.3 Balancing gas function

When the TSO calls on balancing gas it is for the purpose of managing pipeline linepack inventory. When making the decision to use it the TSO follows a standard operating procedure, and takes into account the available linepack, current flow data and the perceived trends in pipeline use and their effect on the future linepack inventory. No other considerations are taken into account when making a decision as to whether to use balancing gas.

MDL considers pipeline balancing as a residual function that should be required only when pipeline users are unable to balance their positions using the facilities and tools available to them. In particular, Call balancing gas is not provided as a source of supply for pipeline users unable to contract for their own gas demand, nor is Put balancing gas taken so that users may store gas within the pipeline.

MDL's view of the functional role of pipeline balancing is described more fully in Section 4.2.

2.4 Efficient market mechanisms – day ahead and spot markets

MDL notes that many parties seek to measure MDL's balancing activities by the standard of an efficient market mechanism. MDL welcomes the development of such mechanisms, but notes that none are currently available.

MDL can only deal with what is available, and does not consider it is well placed to develop those mechanisms, nor does it wish to do so. MDL cannot assume the existence of a market mechanism in formulating its procedures when none exists. MDL notes the GIC's proposal for a day ahead market. This will be useful and hopefully it will assist in removing persistent imbalances that have previously been imposed on the Maui Pipeline.

3. ERGEG Principles

Full details of the ERGEG principles are available in Appendix A of the Issues Paper. This section summarises the main points associated with each ERGEG principle and presents MDL's view of the principles both at an aggregate level and individually.

3.1 MDL's view of ERGEG Principles

MDL supports the ERGEG principles for good gas balancing practice. MDL considers that these principles can be applied in the New Zealand context and that they will contribute to ensuring that costs associated with correcting pipeline imbalances are fairly and transparently passed back to the party or parties that caused the imbalances.

Section 6 of this submission presents the steps that MDL intends to take to further develop its balancing regime based on the ERGEG Principles.

3.2 Principle 1 – Balancing responsibilities

- *Network users are responsible for balancing their own positions under the timeframes and rules of a given balancing regime.*
- *The TSO should retain a residual role to maintain physical balance to ensure the efficient and safe operation of the system.*

MDL considers that this is stated as the primary principle for a reason. Pipeline users should accept the primary responsibility for balancing their own positions within the nomination timeframes. MDL will propose an MPOC change that will remove any doubt that this is the primary responsibility for all pipeline users.

It follows that each TSO must provide adequate incentives for users to maintain balanced positions within its system. And if pipeline users balance their own positions each day, then the TSO balancing role will be to balance only the inevitable residual fluctuations expected in the system that are caused by events between nomination cycles and metering error.

A residual balancing role means that TSO's should not be responsible for being the "suppliers of last resort" for users unwilling or unable to buy or sell the amounts of gas they require. MDL acknowledges that in taking this view, the decisions taken by its Balancing Agent must be as transparent as possible. This is dealt with in more detail below.

3.3 Principle 2 – General requirements for balancing rules

- *Balancing rules should be designed to be fair, non-discriminatory, transparent, and based on objective criteria.*
- *Balancing rules should be designed to minimise the residual physical balancing role of the TSO, facilitate market participation and competition, and avoid discrimination so as to avoid creating entry barriers to new entrants and smaller players.*

MDL agrees that balancing rules should be designed to be fair, non-discriminatory, transparent, and based on objective criteria. It is continuing to develop and publish its

balancing procedures in accord with this principle and will seek to make balancing decisions as transparent as possible. See Sections 5.5 and 6.2.2.

Requirements to minimise the residual physical balancing role, facilitate market competition and avoid discrimination point inevitably towards the adoption of non-discriminatory open market mechanisms for buying and selling balancing gas and trading imbalances. Other requirements include adequate ring-fencing, industry consultation and appropriate governance arrangements. MDL would welcome such developments.

In practice the implementation and application of new balancing rules may impose additional costs on the TSO which MDL believes must be recovered from pipeline users in a fair and transparent manner.

3.4 Principle 3 – Frequency of balance

- *A daily balancing period is preferred unless technical/operational reasons and/or safety/security reasons mean that hourly balancing is necessary.*
- *Choice of balancing period should be based on an objective assessment of a range of criteria including:*
  - *Physical operational issues*
  - *Available balancing tools and flexibility*
  - *Relationship between balancing period and the commercial incentives to balance*
  - *The balancing periods used in connected gas systems to avoid creating barriers to trade between the systems*
  - *Availability and accuracy of information for the balancing period*
  - *Costs associated with a given balancing regime*
  - *Nomination procedures should complement the frequency of the balancing period*
- *The choice of balancing period should not expose shippers to unnecessary inefficient costs that could also create barriers to new entrants*
- *Where possible, incentive based balancing mechanisms should be used to allow market participants to manage their own risks*

MDL supports a daily balancing period. In practice the need for pipeline balancing on the Maui Pipeline is assessed routinely several times a day with assessments occurring more often if the balancing situation is critical. This would imply that a balancing period of less than one day is appropriate. However MDL is of the view that a daily balancing period is the most cost-effective option, provided that users are incentivised to avoid excessive demand and supply peaking.

MDL believes that non-discriminatory market-based mechanisms would be the best way to enable market participants to manage their own risks and looks forward to the industry developing these.

3.5 Principle 4a – Balancing costs and incentives for the TSO

- *The TSOs should have commercial incentives to minimise the cost of the balancing regime*
- *If a TSO is allowed to accept bids and offers on balancing gas then it should procure in a transparent and fair non-discriminatory manner using market based mechanisms where possible*
- *The balancing regime should ensure that the TSO remains as close to cost-neutral as possible in relation to balancing actions – safe, reliable and economic system*
- *If a TSO is not allowed to accept bids and offers , the TSO should be able to contract for gas in other ways, for example, storage gas, or with contracts with shippers*
- *Information on costs incurred by the TSO shall be made public as long as the market participants are not commercially disadvantaged by this*

MDL sees the arrangements for the purchase of balancing gas going through two stages. In the current market the CO will have to continue accepting bids and offers directly. In the event that the industry develops a same day spot market then MDL will seek, as far as practicable, to use the market to set the level of the price paid for balancing services as well as providing a potential source of balancing gas.

Cost neutrality should be an objective, but it must be recognised that it will be a difficult objective to attain even with information on a daily market-clearing price. The MPOC tariff setting system provides that all residual income or expenditure derived from balancing gas transactions is an operating cost which must be paid back to or recovered from Shippers through the tariff rate.

Information on balancing costs will be made public through the Maui IX system.

3.6 Principle 4b – Charges for imbalances

- *Imbalance charges should not distort the wholesale, storage, and flexibility markets*
- *Imbalance charges should be cost-reflective where possible*
- *Imbalance charges should provide appropriate incentives for network users to balance their own positions*
- *Socialisation of costs between network users should be avoided where possible and not create barriers to new market entrants*
- *Incentives should be fair and non-discriminatory, based on objective criteria and not create barriers to new entrants*
- *The imbalance calculation methodology should be published*
- *Balancing charges and operational costs should target the market participant responsible for the creating the imbalance*
- *Costs that cannot be targeted should be allocated across shippers in a non-discriminatory manner*

Cost reflective imbalance charges will have to take into account all charges for providing the balancing service. For example, there is likely to be some element of fixed charges relating to the Balancing Agents administrative costs, and MDL may have to enter into balancing contracts that include a fixed charge for providing

balancing capacity, whether it is required or not. These costs will be most fairly applied if they are passed on as a margin (over or under the market cost of gas for the day), payable by users of balancing gas.

A careful balance will need to be drawn between balancing charges that do not distort the wholesale, storage or flexibility markets, and balancing charges that reflect actual costs, and balancing charges that provide incentives for users to balance their own positions, as these objectives can become contradictory.

MDL agrees that socialisation of costs between pipeline users should be minimised. Nevertheless it needs to be recognised that there are some costs, such as those associated with UFG, which can only be socialised.

MDL strongly agrees with the "causer pays" principle and believes that if adopted it should include the causers of imbalances on pipeline systems interconnected to the Maui Pipeline

3.7 Principle 4c – Trading of imbalance positions

- *If flexibility tools and/or information are not sufficient to allow market participants to manage their positions effectively then other mechanisms should be introduced. For example ex-ante trading, pooling of imbalance positions and ex-post trading*
- *TSO responsible for providing systems to facilitate trading/pooling of imbalance positions where these services are provided*

MDL has provided the mechanism for the trading of imbalance positions. The mechanisms for imbalance trading will be reviewed to ensure there are no impediments to trading. Imbalance trading options need to take into account the tariff charges that would be applicable for moving gas between the points where the imbalances are being traded.

MDL note that fixed and other balancing costs retrieved through margins on the Put and Call balancing gas prices charged for imbalances on the Maui Pipeline will provide a considerable incentive to trade imbalances.

MDL believes that TP Welded Parties would minimise the balancing costs on their system if they were to avail themselves of the mechanisms available.

3.8 Principle 5 – Tolerance services

- *Tolerance levels should only be used where direct access to flexibility tools is such that a degree of risk mitigation is necessary to prevent barriers to new entrants. This is more applicable to developing markets*
- *Where markets are better developed and information access and flexibility tools are adequate, tolerance levels should be reduced*
- *Tolerance levels should be designed to reflect the technical capabilities of a transmission system*

This principle is an important element in reducing the socialisation of balancing costs. Tolerance levels appear to convey a benefit by reducing a pipeline user's balancing costs. In practice, the balancing costs that result from tolerances are still incurred but merely socialised through the tariff. Furthermore the total balancing cost to all users

is higher than it might otherwise be because the incentive for users to stay in balance is reduced.

MDL believes that the larger pipeline tolerances should be progressively reduced and ultimately eliminated.

3.9 Principle 6 – Information on balancing status

- *TSOs shall provide sufficient, timely and reliable on-line based information on the balancing status of network users to allow network users to take timely corrective action*
- *Information should be provided to all participants on a non-discriminatory basis and in a format which is meaningful, quantitatively clear and easily accessible*
- *TSOs shall use provisional allocations in the calculation of imbalance charges to reduce the risk for shippers where information flow is a problem.*
- *The time period for changes to be confirmed and the method for calculating provisional allocations should be approved by the competent authority after proper consultation with the TSO and relevant shippers, as should any subsequent changes to charges once definitive allocations are available.*

MDL agrees with this principle. MDL provides considerable information on balancing status (online graphs of Scheduled Quantity and Measured Quantity, plus imbalances within 1 working day). MDL will also publish its balancing actions the day after gas flow.

In assessing this principle MDL is concerned that many major points on the NZ system have zero transparency (lack of metering information and lack of scheduling).

3.10 Principle 7 – Harmonisation of balancing rules

- *TSO's are responsible for ensuring compatibility between balancing regimes to facilitate inter-system trade*
- *Where it is justified that balancing regimes remain different between interconnected networks, standardised agreements and procedures between TSO's should be put in place to facilitate trade*

MDL believes that it is particularly important in the New Zealand context to have inter-system rules that recognise that imbalances caused on one pipeline system can create imbalances in another, and which provide for balancing costs to be charged to the causer, even if the causer is a user of an interconnected pipeline. The MPOC already has rules designed to assist this objective.

3.11 Principle 8 – Provision of flexibility

- *Market participants should have access to flexibility tools to manage their risks efficiently*

MDL agrees with this principle and notes that the MPOC already provides:

- Trading of imbalances for Welded Parties;

- Four intraday nomination cycles for Shippers; and
- Generously high Peaking Tolerances for intraday flexibility.

4. MDL's view of current balancing arrangements

4.1 Historical context

4.1.1 The Maui field and flexibility

The Maui Legacy Gas Contract has historically provided a high level of flexibility/swing to natural gas users in New Zealand.

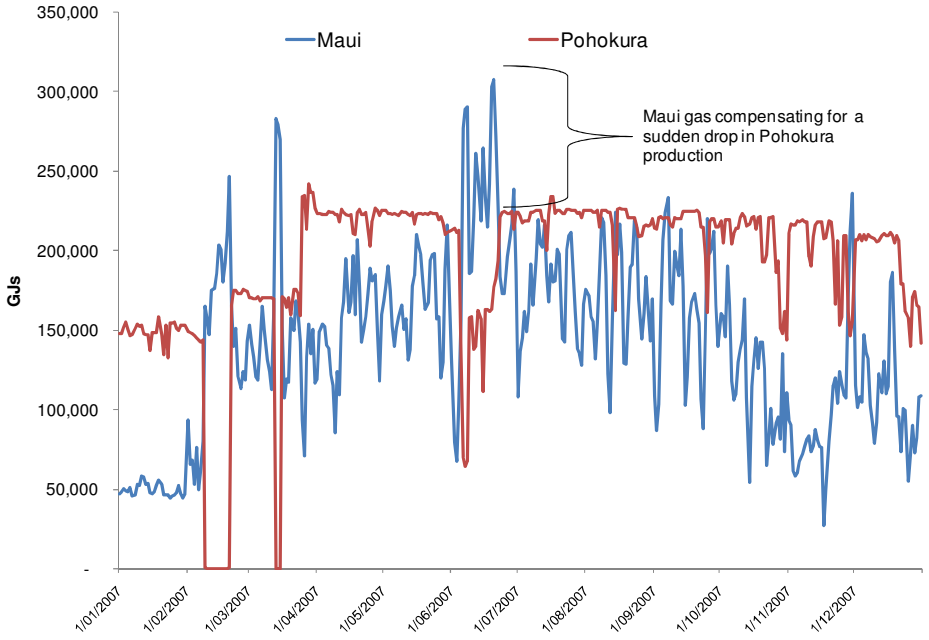
4.1.2 Provision of balancing flexibility for the Maui Pipeline

Figure 1 below illustrates the production profiles for the Pohokura Field and Maui Field in Calendar Year 2007. Pohokura gas is produced on a relatively flat profile but in contrast Maui production is characterised by a serrated production profile which is indicative of its historic contribution as the flexible swing producer.

The Maui Field has also been the primary source of balancing gas for the Maui Pipeline since the start of Open Access in October 2005. Balancing gas has been provided by either reducing or increasing gas flows at the Maui Production Station from those scheduled. However, there are limitations to the balancing service that Maui can provide; in particular, plant configuration imposes a 2,150 GJ/hour minimum flow rate for the Maui Production Station. Any Put gas nominations that take production below this level cannot be accepted.

In the past 12 month period, requirements for Call balancing gas (that is balancing gas injected into the pipeline) have exceeded 2.2 PJ. The required quantities of Put balancing gas, (gas taken out of the pipeline), have been slightly greater. With this demand, MDL sees the cost of balancing gas as being of the order of $10 million a year.

Figure 1: 2007 Production profiles for Maui and Pohokura[1]



Section 2 of the Issues Paper also refers to the flexibility provided by changes to the pipeline linepack. In MDL's view, it does not sufficiently emphasise one important point. That is, that once the linepack flexibility has been exhausted by an imbalance in one direction, it is no longer available to meet further imbalance in the same direction unless the direction of pipeline imbalances reverses in the meantime or the position is reversed by the use of balancing gas. Unfortunately experience shows that imbalances on the Maui Pipeline have not been random in direction, rather they tend to be in one direction for a significant number of days. This tendency substantially reduces the role linepack flexibility can play in maintaining the pipeline balance.

4.1.3 Maui balancing role

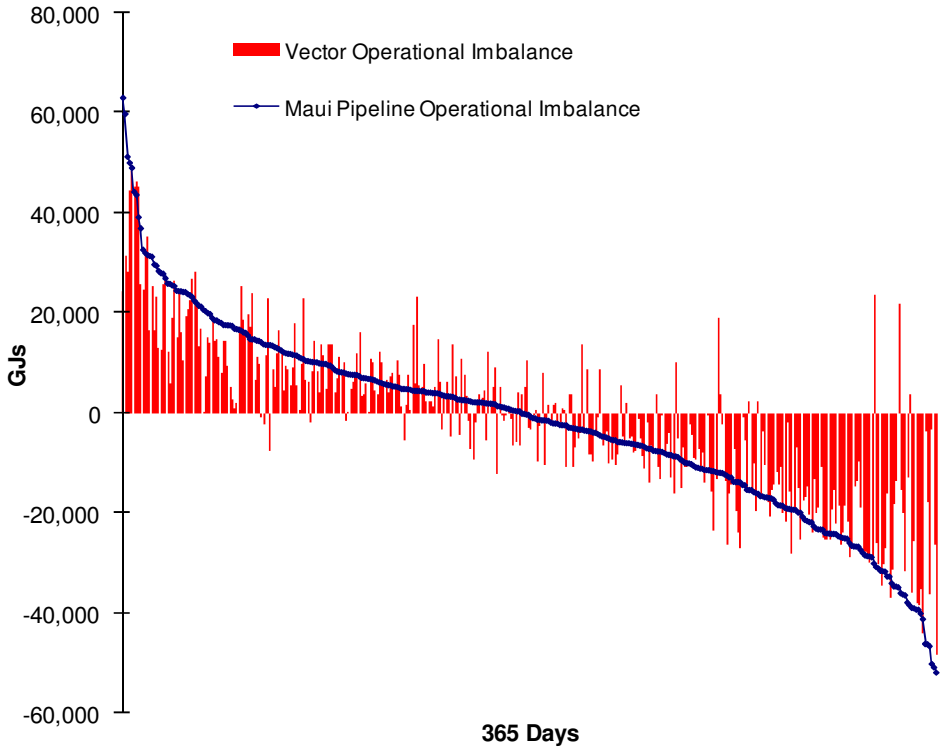
The Maui Pipeline provides balancing gas to meet imbalances caused by Welded Parties on the Maui Pipeline. Welded Parties include Transmission Pipeline Welded Party's (**TP WPs**) such as the Vector transmission system that plays an important role in NZ by supplying gas to industrial, commercial, and residential users on regional transmission and distribution networks[2].

Operators of pipelines connected to the Maui Pipeline are responsible for their own pipeline balancing. In practice, as noted in the Issues Paper, operators have been unwilling or unable to undertake the actions necessary to keep flows through the Welded Points in line with the quantities of gas they have scheduled. This means that most gas transmission and distribution networks across the North Island currently rely on the Maui Pipeline for correcting operational imbalance whether it occurs on the Maui Pipeline itself or on a connected pipeline.

[1] Data for the chart are public domain "Daily Metered and Scheduled Quantity Reports" posted on OATIS

[2] http://gasindustrycompany.co.nz/Downloads/Documents/Publications_Presentations/061128_Balancing_Workshop_1_-_Vector_Presentation.pdf

Figure 2: Maui Pipeline operational imbalance duration curve, and same day Vector TP WP operational imbalance



To emphasise this point Figure 2 above illustrates the operational imbalance duration curve for the Maui Pipeline with the "same day" Vector TP WP operational imbalance superimposed for the year from 1-Aug-2007 to 31-July-2008. The chart demonstrates that for this period Vector TP Welded Parties were responsible for the majority of operational imbalance on the Maui Pipeline.

Without the imbalances contributed by TP Welded Parties, the necessity to use balancing gas on the Maui Pipeline would be substantially lower.

4.1.4 Current MPOC balancing arrangements

- At present the MPOC gives Welded Parties a Daily Operational Imbalance Limit at each of their Welded Point(s) for a day. The limits only apply to negative operational imbalances and the limit for the day is either a number of GJ or a percentage of the Scheduled Quantity at that Welded Point for that Day – whichever is the higher.

- If the daily flow exceeds the daily limit then this results in Incentive Pool Debits, which expose the Welded Party to the potential for Incentives Pool claims.

- Pipeline users also have a Running Operational Imbalance limit which provides pipeline users a reasonable level of flexibility in terms of when they correct their imbalance. The MPOC provides the Welded Parties a

Running Operational Imbalance Limit for their Welded Point(s). The limits apply to positive and negative Operating Imbalances. Current Limits are set at the same DOIL Limits.

- Accumulated Excess Operational Imbalance is the amount of Running Operational Imbalance that is outside a Running Operational Imbalance Limit. Imbalance Limit Overrun Notices (ILONs) can be sent to a Welded Party if they are outside Running Operational Imbalance Limits. The notice provides the amount of time for the Welded Party to payback the AEOI. If the Welded Party takes action to remove the AEOI then the notice will automatically expire. The notice can be resent if the AEOI continues to grow, and each notice supersedes any previous notice. If a Welded Party does not settle the ILON then MDL has the discretion to cash out the Welded Party.

4.1.5 Effectiveness of MPOC balancing arrangements

ILONs and the Incentives Pool are currently the main mechanisms to incentivise Welded Parties to minimise their operational imbalance. The existing arrangements offer Welded Parties excessive time to correct any operational imbalance making it very difficult for MDL to recover balancing costs from the causers of imbalance. MDL considers that, given the technical characteristics of the system, a "reasonable period of time" for correction of imbalances can be no longer than about 12 hours, or less if the imbalance is outside tolerance.

Even after allowing for the effects of the proposed removal of the Maui Legacy Gas provisions from the MPOC, it is not expected that these arrangements will be fully effective. The main problems are:

- The time allowed for a party to return to balance, (often causing additional balancing costs by doing so), before cash out action can be taken.
- Excessive tolerances that allow imbalance without penalty
- Setting an appropriate mismatch price

These deficiencies, together with the effect of the MPOC Legacy Gas provisions have resulted in balancing arrangements provided for Maui Pipeline users being abused. For example some Welded Parties make no effort to minimize their operational imbalance (as illustrated in Figure 2), use the pipeline to store gas for later use, or take gas that that they have not scheduled.

4.1.6 Effect of Pipeline Tolerances

Pipeline tolerances effectively allow pipeline users a level of operational imbalance for which they will not be charged. If set too high, they cause substantial balancing costs that are incurred by the pipeline operator, even though users are not breaching their tolerance limits. For the Maui Pipeline there is now substantial evidence that current tolerance levels are well outside the pipeline flexibility limits if no balancing gas use is assumed (See also Section 4.3).

4.1.7 Increasing requirement to self-balance

There are a number of factors that increase the need for all parties to substantially tighten the management of operational imbalance:

- **Balancing gas costs will rise**. In the past the Maui Mining Companies have provided balancing services to Maui Pipeline users at no charge. This situation is about to change. Balancing gas contracts continue to be sought from third parties and balancing gas charges will reflect the prices that these parties offer balancing gas for. When this happens, it will be important to have balancing gas costs allocated to the causer of the imbalance to the greatest extent possible. Balancing gas costs that cannot be allocated to the causer will be socialised, (i.e. allocated to all Shippers in proportion to their transmission throughput as an operating cost recovered under Tariff 2).
- **Reductions in flexibility.** There is no certainty as to how long the Maui Mining Companies will provide access to Maui Field flexibility. For this reason MDL continues to seek new contracts from all parties wishing to provide balancing gas.
- **Greater calls on available flexibility.** As noted in the Issues Paper, it is possible that additional gas fired power stations will be built, and that some of these will be "peaking plant" used to offset the uneven generation profile of renewable energy sources such as wind. If they proceed, developments of this type are likely to increase the strain on existing pipeline flexibility resources and increase balancing requirements.

It can be concluded that incentives to self-balance must be increased in a timely manner in order to avoid large increases in socialised balancing costs. If balancing costs cannot be allocated to the causer, they will be socialised in the form of increased pipeline tariffs.

4.2 Balancing Agent role poorly understood

The commencement of Open Access put the primary responsibility for balancing gas injected into and taken from the Maui Pipeline on Welded Parties and Shippers. There was never any intention expressed in the MPOC, or anywhere else, under Open Access that the Maui Pipeline operator would have an obligation to store gas which could be taken later or make gas available from linepack for those unwilling or unable to find a supplier. In fact storage of gas in the pipeline is forbidden by the MPOC.

Pipeline balancing was meant to be, and according to the ERGEG principles should be, a residual activity which requires the pipeline operator to compensate for the unavoidable estimation and measuring errors that will occur.

Much is made of the uncertainties that arise from trying to estimate gas supplies to the mass market. MDL notes that:

- Sales to the mass market are a very small proportion of total gas sales and that the mechanisms so far developed for enabling individual shippers to estimate their mass market demand seem primitive to say the least. In any case whatever the level of uncertainty in this area there is no apparent reason why other gas users in other sectors or pipeline owners should pay the costs involved in compensating for it.
- Information provided by the Maui OATIS system at some TP Welded Points can give a reasonable picture of overall mass market demand. Nevertheless

better information (such as online availability of scheduled and metered flow) from other points on interconnected pipelines would help.

An effective and efficient balancing regime should almost be self-managed by Welded Parties and Shippers using a range of market based tools that give the market participants flexibility in the way that they deal with operational imbalance. There should be no need to establish a market specifically for balancing if an on the day spot gas market already exists. Such a development would allow the Balancing Agent role to be truly residual and as a consequence least cost.

MDL would welcome industry initiatives for the development of an efficient market.

4.3 Socialisation of costs

MDL agrees that balancing costs should be collected from the causer of the imbalance and that socialisation of costs should be avoided where possible. The current MDL balancing arrangements contain features that work against this objective, namely:

- **Allowing pipeline users time to clear imbalances**. In practice this means that the pipeline operator has to take balancing action to correct the original imbalance, and then possibly take further balancing action in the opposite direction when the imbalance is cleared some time later by the original causer. This sequence of actions creates balancing costs that cannot be recovered from the causer and are therefore socialised. Avoidance of this situation requires a mechanism that charges for balancing costs within the period that balancing actions are taken. For the Maui Pipeline this cannot be greater than one day.
- **Use of imbalance tolerances**. An analysis of MDL's balancing requirements indicates that for a representative 12 month period approximately 30% of the balancing gas used would have been needed for balancing operational imbalances that were within tolerance. This proportion can be expected to increase if pipeline behaviour can be improved and tolerances are left unaltered. The cost of balancing gas used to accommodate imbalances within tolerance cannot be attributed to the causer and must therefore be socialised. Any attempt to reduce socialisation of balancing costs points inevitably towards the need to reduce and ultimately remove imbalance tolerances or to charge individual Welded Parties for the tolerance service being provided.

4.4 Attribution of costs

As noted in Section 4.1.3 above, the majority of operational imbalance that affects the Maui Pipeline occurs in pipelines connected to it. ERGEG principles require balancing costs to be attributed to the causer. Recovery of balancing gas costs incurred as a result of imbalances on other pipelines can be problematic as the costs must first be attributed to the relevant TP Welded Point and then distributed using the mechanisms provided in the relevant pipeline code. These may or may not result in Maui Pipeline balancing costs being attributed to the parties causing the imbalances in the first place. In any case the cost distribution mechanism has had little chance to show that it might work efficiently because of continuing disputes over charges.

MDL believes that an efficient system of cost attribution for balancing costs is essential. This must be attained in one of two ways:

- Either the operators of pipelines connected to the Maui Pipeline take responsibility for matching scheduled and metered quantities at the TP Welded Points (including the procurement of balancing gas), and use their own code mechanisms for allocating the cost of doing so; or
- Robust mechanisms are put in place to ensure that balancing costs incurred on the Maui Pipeline are collected from interconnected pipelines that are causing them. This attribution of cost may need to be enforced by regulation if existing mechanisms prove inadequate.

As noted above MDL is aware of the uncertainties that may be involved in estimating imbalance positions in some gas markets. However these uncertainties are not a legitimate reason for passing on any of the resulting balancing costs to other pipeline users or industry participants. If each market sector bears its own balancing costs, economically efficient decisions will be made about the level of investment needed to improve gas scheduling decisions.

Overall MDL believes it is unacceptable to ask gas users on the Maui Pipeline to bear any of the balancing costs incurred as a result of imbalances on inter-connected pipelines.

5. GIC Issues

In the Issues Paper, the GIC have highlighted 9 areas of concern:

5.1 Poor governance: existing balancing provisions are unclear or hard to enforce; it is hard to gain agreement on the changes needed

MDL believes that:

- Pipeline users should have the primary responsibility to balance their positions.
- The role of the Balancing Agent should be residual
- The objectives of pipeline balancing by the Balancing Agent should be to:
    - Manage the pipeline inventory within the required limits; and
    - Minimise the cost to pipeline users of doing so.

It is noted that the MPOC has few provisions governing balancing on the Maui Pipeline, however the pipeline Standard Operating Procedures that cover balancing, the contracts being used, and the procedures covering other matters are all readily available.

Changes to improve the enforcement of balancing rules are required. MDL believes the changes in the direction suggested in section 6 below will result in rules that are clearer and more enforceable. It is prepared to move towards an industry lead outcome by consulting on and recommending change requests using the established MPOC procedures.

5.2 Role of balancing agent unclear: security of supply obligations on the balancing agent are unclear

MDL believes that the Balancing Agent's role can be expressed clearly in a few simple statements. These would include:

- Accommodating normal fluctuations and variations of gas taken relative to schedule;
- Minimising procurement costs given the degree of security of supply of balancing gas required.
- Transparent non-discriminatory procurement procedures.
- Publication of balancing actions and costs.

Security of supply is a question requiring more detailed consideration. In general MDL believes that balancing gas may not and probably should not be counted on to cover every conceivable pipeline contingency. For example, MPOC does not require MDL to prevent Emergencies. The cost of maintaining the necessary cover for prevention is likely to be excessive in financial terms and lead to the Balancing Agent tying up available sources of flexibility to the point where other users cannot access what they need. Obligations to provide Balancing gas should continue to be limited to cover residual balancing obligations affecting the ability to provide transmission services, whereas security of supply for users is a matter better handled through normal commercial arrangements.

5.3 Poor information on balancing status: users – especially mass market retailers – have poor information on current imbalances.

MDL provides comprehensive information on balancing status including hourly information at large welded points versus schedule, and linepack trends. MDL recognises that this could be expressed in a more adoptable form and is looking at options for doing that. However, the mass market that is supplied through inter-connected pipelines has no similar transparency.

5.4 Multi-day balancing and pricing period: whilst nominally one day, the balancing period extends over several days, due to ILONs provisions and pricing lags.

This concern is valid. Given the technical constraints and the need to conform to ERGEG Principle 3, imbalances have to be measured and charged for within the one day balancing period or else there will be non-conformance with ERGEG Principle 4b. In accordance with ERGEG, MDL believes that balancing charges on the Maui Pipeline should be based on same-day cash-outs of all imbalances rather than the use of one day or multi-day ILONs followed by cash outs if the imbalance is not rectified. Allowing users to “pay back” imbalances with gas at a later date increases balancing gas costs and increases the proportion of these costs that will be socialised.

5.5 Poor transparency: it is unclear to users how balancing costs are incurred and how prices to users are set.

MDL agrees that the derivation of balancing costs needs to be more transparent. The balancing arrangements that have been put in place by MDL will provide a step in that direction as contracts and term sheets are made publicly available. The mechanism for setting Mismatch Prices is currently under review and the methods used to derive these will also be publicised. Publication of information on balancing gas sales and purchases will be addressed.

In the long term MDL believes that balancing gas prices should reflect the clearing price obtained from a same-day spot market if an efficient market is developed by the industry. However it should be noted that charges for balancing gas would not be identical because:

- MDL's prices must not be equal to the market price because there must be a disincentive to parties taking gas that has not been scheduled;
- MDL's balancing actions have to occur between nomination cycles.
- MDL's costs have to include the Balancing Agent's administrative costs and any fixed charges levied for balancing gas supply.
- MDL should seek to recover costs to support the provision of tolerances.

5.6 Poor allocation of positive imbalance costs: charges to users for positive imbalances are much less than the costs these imbalances create.

MDL agrees that a balancing regime must be capable of handling both positive and negative imbalances. The improved balancing arrangements outlined in this paper would require both negative and positive imbalances to be cashed out on the day.

5.7 Competing balancing agents: there is potential for the two balancing agents to be in conflict and add to balancing costs and complexity.

MDL notes that currently balancing actions on the Maui Pipeline are balancing not only the Maui but also most of the Vector pipeline systems. This situation transgresses the ERGEG principles which require that inter-connected pipelines should each be responsible for their own balancing. Surprisingly, given the ERGEG principles are advocated, this outcome is not recommended in the Issues Paper

If the Maui Pipeline is required to balance inter-connected pipelines, the issue is not so much one of harmonising balancing actions, but one of efficient and rapid attribution of costs to the causers of imbalance. At the very least this requires a robust mechanism for attributing and collecting balancing costs across pipeline boundaries.

5.8 High transaction costs: the complexity of balancing arrangements may give rise to unnecessarily high transaction costs.

Transaction costs can be minimised by the adoption of a system that allocates balancing gas charges each day strictly according to operational imbalance, after allowing an opportunity to trade imbalances.

Complexity will increase if ERGEG principles are not followed. In particular, application of ERGEG Principle 1 is most important to reduce complexity.

5.9 Inappropriate tolerances: tolerances may be too high in aggregate (compared with linepack limits) and not allocated to those who value them most.

MDL supports a reduction in and the eventual removal of tolerances as they lead to socialisation of balancing costs.

6. Outline of steps that will be taken by MDL

6.1 Introduction

In the following sections MDL puts forward the steps which it is planning to initiate to help address some of the problems identified in the Issues Paper and the industry. It acknowledges that much of this work will require the support of the industry and the GIC but it is willing to make the first step as quickly as possible.

MDL will consult with the industry on these changes, either as part of the normal MPOC change process, or by initiating the consultation itself.

6.2 Objectives

The objectives that MDL is intending to work towards are summarised in this section.

6.2.1 Reinforcement of primary balancing obligation

This will consist of an MPOC amendment to make it clear that it is a primary obligation of Welded Parties, (and Shippers), to balance their positions.

6.2.2 Balancing Agent Governance

To address this concern MDL suggests that an elected industry Balancing Committee be established with the following roles:

- To ensure a transparent balancing process
- To ensure the Balancing Agent performs the assigned role
- To evaluate proposed changes to the TSOs balancing policy against agreed balancing objectives
- To make submissions on MPOC change requests to incorporate balancing processes

It is envisaged that the Committee could be convened by the GIC.

6.2.3 Assignment of balancing costs to the causer

Action in this area will consist of:

- Agreements or other arrangements to ensure that balancing charges can be assigned to the causer whether the imbalance occurs on the Maui Pipeline or an interconnected pipeline.
- MPOC changes to reduce the quantity of balancing costs that are socialised. These will include:
    - Substitution of same day cash-outs for the ILON process, with appropriate adjustments to the Incentives Pool (see below).
    - Reduction and ultimate elimination of pipeline tolerances.

6.2.4 Introduction of Same Day Cash-Outs

Automatic daily cash-out of all operational imbalance, with the following provisions:

- Cash-out of both positive and negative imbalances on the same day.
- Prices to be based on the clearing price for the same-day spot market.
- Improved opportunities to trade imbalances (Tariff charges will be payable on imbalances traded to avoid gaming).

6.2.5 Market based balancing gas prices

Cash-out prices based on the clearing price for the same-day spot market, plus or minus a margin. The margin would be calculated to recover administrative costs and any fixed balancing charges or margins required by balancing gas suppliers, and to prevent arbitrage. It must be noted however that in MDL's

view, market-based pricing of imbalance would be equitable to MDL Shippers only if tolerances are eliminated.

6.2.6 Other associated objectives

Associated changes might also include:

- Changes to make imbalance trading easier.
- Changes to OFO's to provide a better interface with the Critical Contingency regime currently being introduced and to improve compliance. These could include removal of tolerances for any party issued with an OFO and automatic cash out of imbalances at the Call price plus Incentive Fees.
- Incentives Pool changes to supplement and match changes to the daily cash out regime proposed. These should include a more appropriate pricing mechanism.

6.3 Staged approach

It is apparent that the balancing problems currently being experienced cannot be solved using a single "big bang" approach. The changes will require explanation, development, and detail before they are submitted as MPOC change requests. Changes to the OATIS system and operating procedures may also be required.

It must be recognised that the solution to the current balancing problems will not be found by merely looking at the actions of TSO's. Actions taken by one pipeline user can affect other users and increase the costs paid by all. The solution lies in taking a firm stance on:

- The requirement for pipeline users to balance their own positions on a daily basis;
- Assigning imbalance costs to causers.

All parts of the industry will require time to adjust and get their houses in order. For this reason MDL proposes that the changes it intends to make should occur as a series of well-defined steps. For convenience and ease of understanding these are set out in three phases:

- **Short term**, which includes the steps that are currently under way.
- **Medium term**, commencing 2008 and being implemented through 2009.
- **Long term**, when all the changes recommended are in force.

However actions such as seeking MPOC changes required for one phase may overlap with an earlier phase.

6.4 Short Term Phase

The objective of this phase is to end the Maui Pipeline's total reliance on balancing services provided from the Maui Gas Field and to source balancing services in a transparent and competitive manner.

New Instructions have been issued to the Commercial Operator which require it to:

- Develop master contracts for two types of balancing gas:
    - Operational Balancing Gas which will be available on the day.
    - Secondary Balancing Gas which will be purchased or sold using the standard OATIS nomination mechanism and called upon at standard scheduled nomination times.
- Enter into contracts for both types of gas with STOS as Welded Party at Oaonui (to be called upon only in the absence of more competitive arrangements offered by third parties).
- Seek contracts with other Welded Parties for supply of Secondary Balancing Gas.

This process is now completed. The Master Contracts are available on the MDL IX and proposals are being sought from the industry for the supply of Put Secondary Balancing Gas.

At the same time MDL has proposed changes to the MPOC which will remove the provisions governing Legacy Gas. These changes are expected to prevent any further disputes surrounding the Maui Pipeline Commercial Operator's ability to issue 1 day ILON notices and cash out any imbalances that are not rectified within the required time-frame.

The Commercial Operator will be seeking to have Call Secondary Balancing Gas contracts in place as soon as possible, but no later than the time the Legacy Gas provisions are removed from the MPOC. Action will then be taken to develop arrangements for the supply of operational balancing Gas and to seek additional suppliers for this service.

The prices of gas purchased or supplied under the Secondary and Operational Balancing Gas Contracts will be reflected in the formulas used to set the Positive and Negative Mismatch Prices. These will be reviewed and set regularly by the Commercial Operator. An MPOC change to reduce the notice period required to 1 day for a change in these prices will be submitted.

The daily quantities of balancing gas purchased and sold by the Balancing Agent and the weighted average cost of the gas will be published on the MDL IX.

A review of the current tolerances on the Maui Pipeline and publication of a paper on the MDL IX setting out the findings on the appropriateness of the current tolerances.

At the conclusion of this phase the arrangements for assigning balancing costs originally provided for in the MPOC will be in operation. Competitive bids for balancing gas services will be available and cash out prices will be adjusted accordingly. There will still be a considerable amount of "socialisation" of balancing costs because of the ILON system and the relatively large tolerances provided to Welded Points.

If a day ahead spot market for gas is developed as expected, some or all Secondary Balancing Gas requirements may be purchased from it.

6.5 Medium Term Phase

Work on the MPOC amendments required for this phase will commence soon. The objective will be to have them ready early in 2009. They will be progressively

implemented as they are approved with adequate warning for all parties. A number of interlocking sets of changes will be needed:

- Changes to the MPOC which will:
  - Create greater incentives for obeying OFO's
  - Developing a more appropriate Incentives Pool mechanism
  - Remove the ILON system and replace it with provisions for same day cash outs of all operational imbalance positions.
  - Make consequential changes to the operation of the Incentives Pool.
- Removal of any obstacles to the trading of imbalance positions.
- Provisions for setting Buy and Sell Prices based on the availability and price of balancing gas on the day, and allowing for recovery of all the Balancing Agent's costs of balancing (including the costs of providing tolerances).
- Provisions that allow for the recovery of all costs arising from any imbalances on one pipeline system that cause balancing costs on another.
- An initial reduction in Maui Pipeline tolerances to come into force progressively after daily cash outs come into effect.

The result of these changes will be to reduce socialisation of balancing costs and allow firmer attribution of balancing costs to parties causing operational imbalance.

6.6 Long Term Phase

In the long term, as the changes recommended above are put in place, MDL will encourage the development of a same day or flexibility market to operate alongside the day ahead spot market by the GIC or other parties. Put and Call prices for cash outs will be referenced to the prices set by this market.

Pipeline tolerances for operational imbalance will be progressively reduced and ultimately reduced to zero. This reduction should be carried out in a series of steps.

7. Answers to Issues Paper Questions

MDL's response to the questions posed in the Issues Paper is attached at Annex 1.

8. Conclusions

Much of the industry discussion about balancing comes down to a question of cost. A pipeline owner or operator can minimise balancing costs by using suitable operating procedures and purchasing and using balancing gas in an efficient manner. MDL acknowledges the need for efficiency and transparency in the way it administers these functions.

However it also needs to be recognised that the requirement for pipeline balancing is not caused by pipeline owners or operators, but by the actions of pipeline users. It follows that once incurred balancing costs should be allocated to pipeline users in one form or another.

There is no doubt about the most economically efficient way to allocate balancing costs. Allocation to the causer assigns balancing costs to the parties best able to assess whether

additional investment or improved procedures can reduce their operational imbalances and therefore reduce their balancing charges. Socialising or smearing balancing costs adds to the burden placed on all users and reduces the incentive to take corrective action.

MDL believes that the action plan it has outlined in this paper will go a long way towards introducing a rational system of balancing cost allocation.

Annex 1 MDL Response to Questions in Issues Paper

QUESTION	COMMENT
Q 1: Do you agree that the ERGEG guidelines are appropriate to use as a framework to evaluate alternative balancing market design options for New Zealand?	Yes. See the comments in Section 3 of the submission.
Q 2: Are there key issues that are not identified in Chapter 6?	MDL believes that the points raised in Chapter 6, as reported in the Issues Paper, give insufficient weight to the "causer pays" principle in the ERGEG principles. Also the discussions reported did not take up the contentious issues that arise when operational imbalance on one pipeline causes balancing gas costs on another. MDL's own view of the key issues is covered in its submission.
Q 3: Are there any additional design elements, not identified in Chapter 7, which you consider should be addressed	In discussing the option of a single balancing agent the Issues Paper notes that "operationally the pipelines are tightly bound together", without considering the further implications of this view and whether this needs to be the case. If, contrary to ERGEG principles,balancing on the Maui Pipeline is to be used to compensate for imbalance on Vector Pipelines the mechanisms for assigning balancing costs to causers must be more robust. MDL also believes that more emphasis needs to be given to strengthening the primary obligation of pipeline users to remain in balance. In its submission MDL has noted the design elements it considers most important for a balancing solution.
Q 4: Are there any balancing regime options which you consider Gas Industry Co should include in its forthcoming options analysis work?	The options considered should address the question as to whether the balancing agent should be entitled to participate in an "on the day" market.