MPOC Balancing Change Request 2011

Consultation Document

July 2011

CONTENTS

PART I: EXECUTIVE SUMMARY

1. This consultation document discusses the prospect of implementing a "Back to Back" (**B2B**) balancing framework as an alternative to the status quo.

2. Balancing of the transmission network has been a significant focus of the GIC and the industry generally since 2007. The current landscape has significantly improved since 2008, when annual balancing costs were anticipated to be around $20 million per annum, based on Balancing Gas volumes at the time. Balancing Gas volumes are now less than 13% of 2008 levels at a cost of less than $2 million per annum.

3. The main question currently facing the industry in the balancing context is whether there is a desire to improve the targeting of balancing costs to those parties which create imbalances, as compared with the status quo where there is poor targeting of these costs.

4. From the perspective of balancing costs MDL is comfortable with the status quo as the high levels of socialised costs are collected from or refunded to Shippers via the tariffs. However MDL believes that there are significant efficiency benefits to be gained from continuing to implement procedures which provide incentives for participants to improve their primary balancing behaviour.

5. Key design elements which are discussed are:

    - Reduction of ROIL tolerances. The current large tolerances act to distort the allocation of balancing costs and increase the degree of socialisation.
    - Introduction of a flat peaking charge to reflect the scarcity of Intra-Day flexibility.

6. MDL notes the industry preference for dealing with separate issues discretely within the MPOC Change Request (**CR**) framework. MDL believes however that this preference needs to be weighed against the interrelated nature of certain MPOC provisions in order to ensure that proposed changes to the MPOC are sound.

PART II: BALANCING IN THE POST-OPEN ACCESS ERA

1. Introduction

1.1. Open Access commenced in 2005, although MDL did not introduce full balancing charges until 2009. Since full Open Access began we have seen, among other improvements:

1.1.1. A marked decline in Balancing Gas volumes, and therefore in Balancing Gas costs – from a projected $20 million per annum[1] to around $2 million per annum.

1.1.2. Reduced call Balancing Gas prices and a narrowed put / call spread.

1.1.3. Better self-balancing tools made available to industry, resulting in substantially reduced cash out volumes.

1.2. The result is a balancing framework that effectively strikes the balance between providing clear market signals and maintaining discretion to make balancing decisions on a case-by-case basis to minimise overall cost to industry.

1.3. This Part II is structured as follows:

- Balancing developments since 2007
- The decline in Balancing Gas volumes
- Cost neutrality
- Reduced call balancing prices and put / call spreads
- Mokau Compressor fuel and UFG
- Self-balancing
- Interruptions
- Access to information

2. Balancing developments since 2007

2.1. Figure 1 below sets out some of the important balancing developments since 2007 and their corresponding effects. These developments are discussed in further detail in subsequent sections.

2.2. It's important to acknowledge the role expiry of the Maui Legacy Gas contract (in December 2008) played in the context of balancing developments. While that contract remained in force, MDL provided "no cost" balancing services in the spirit of the original contract.

2.3. Once the legacy arrangements terminated MDL turned to MPOC tools to pass balancing charges to "causers". Once these incentives were put in place it is not surprising that parties started to act accordingly.

[1] Gas Industry Company, "Transmission Balancing Options Paper", December 2008, p.21

2.4. Based on this it is clear that the effect of implementing these MPOC mechanisms can only be judged from early 2009.

Year	Improvement	Effect(s)
2007	Discontinuation of post Intra-Day nominations for Maui Gas	Improved "cost to causer" relationship by facilitating cost recovery from TP Welded Points.
	Reduction of Imbalance Limit Overrun Notice timeframes (from 7 days to 3 days to 1 day)	Improved self-balancing behaviour as illustrated in Figure 5 below.
2008	Commenced buying Balancing Gas under competitive contracts	Enhanced transparency and non-discrimination in balancing contracts.
	Most Maui Legacy provisions removed from MPOC	Improved "cost to causer" relationship by facilitating cost recovery from TP Welded Points and other legacy contract holding Welded Parties.
2009	Implementation of Incentives Pool mechanism	Introduced an arms-length process for recovering costs caused by daily and hourly imbalances. Facilitated a "daily balancing" timeframe.
	Implementation of Balancing Gas Exchange (BGX)	Improved availability and transparency of information on the balancing market by providing real time hourly data to signal balancing transactions and enhance self-balancing capability.
	Settlement of industry disputes on MPOC/ OATIS methodology for cash out and Incentives Pool charges	Improved transparency surrounding balancing charges.
	New balancing Standard Operating Procedures	Introduced an arms-length process for making balancing decisions to improve transparency of balancing transactions and minimise Balancing Gas volumes / costs. Refer Figure 2 for reduction in Balancing Gas volumes since 2007.
	MPOC Change Request to implement B2B framework (unsuccessful)	Objective to improve "cost to causer" relationship.
2011	BGX2 implementation project (ongoing)	Reduce put / call spreads and enhance self-balancing capabilities through access to a non-balancing related gas spot market. Market also to enhance ability to trade imbalance positions.
	MPOC Change for B2B (ongoing)	**Cost to causer/cost recovery and creation of a value of the peaking facility.**

Figure 1 – balancing developments since 2007

3. The decline in Balancing Gas volumes

3.1. Call (and put) Balancing Gas volumes have reduced considerably since 2007. Those in 2010 were less than 13% of 2008 levels and further improvements are anticipated for 2011 (see Figure 2).[2] When the Gas Industry Company (**GIC**) initially earmarked Transmission Pipeline (**TP**) balancing as a strategic project, balancing costs were

[2] Note these figures include OBG (i.e. the zero cost balancing facility).

expected to rise to $20 million per annum.[3] These are now less than $2 million per year.

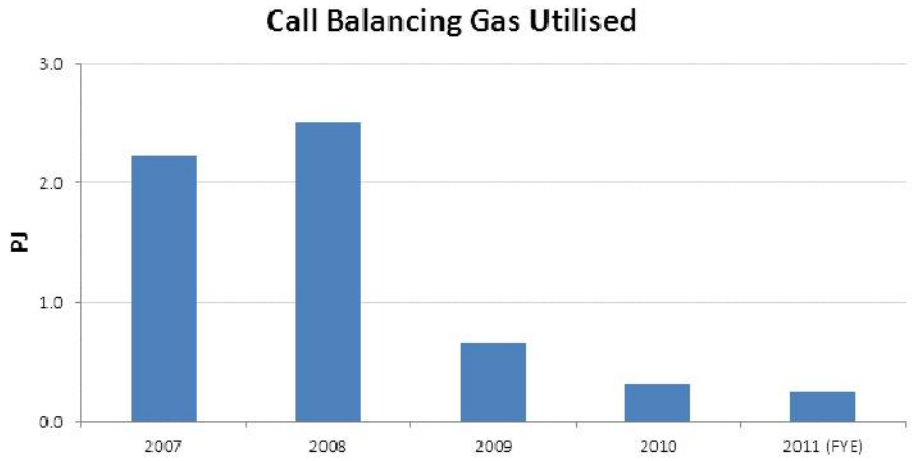

Figure 2 – Balancing Gas: 2007 to 2011

3.2. A number of the developments identified in Figure 1 have put downward pressure on balancing costs, contributing to this trend. Most notably the introduction of:

3.2.1. A suite of balancing charges (Incentives Pool charges and shorter ILON payback timeframes) that incentivise self-balancing.

3.2.2. Standard Operating Procedures (**SOPs**) that direct MDL's entry into balancing transactions. These SOPs improved the transparency of the balancing process while at the same time maintaining suitable discretion to "consider each case on its own merits" in order to minimise costs.[4]

4. Cost neutrality

4.1. MDL's balancing revenues exceeded its costs[5] in 2009 and 2010, with this surplus being refunded to Shippers via the tariffs. In 2011 this may not be the case, and in future costs are likely to be greater than recoveries due to the projected expiry of the "low cost" Oaonui facility in the coming year. For the sake of clarity "under-recovery" creates a transfer from Shippers to WPs; and "over-recovery" creates a transfer in the other direction. This is simply a result of the pipeline remaining revenue neutral since the beginning of Open Access.

4.2. From July 2012 Commerce Commission regulation will come into force. Under this regime unallocated balancing charges will be treated as a recoverable cost, and thus they will be treated in much the same way as under current MPOC.

[3] Gas Industry Company, "Transmission Balancing Options Paper", December 2008, p.21

[4] Industry has argued in the past that codification of threshold balancing rules would send clearer signals to the market. MDL acknowledges this view, although analysis based on past behaviour shows that significantly higher volumes of Balancing Gas would be required (and thus higher costs incurred) than is the case under a discretionary model.

[5] Again, MDL notes that during these years the low cost OBG facility was available.

5. Reduced call balancing prices and put/call spreads

5.1. Call Balancing Gas prices have reduced since 2009, as shown in Figure 3 below. The put / call spread also narrowed. MDL considers these trends can largely be attributed to introduction of the BGX platform, which created a competitive procurement facility for Balancing Gas services, improving the transparency of the balancing market.

5.2. If BGX2 – which would facilitate trading of both balancing and non-balancing related gas – is introduced we would expect prices to further reduce and the put / call spread to continue to narrow.

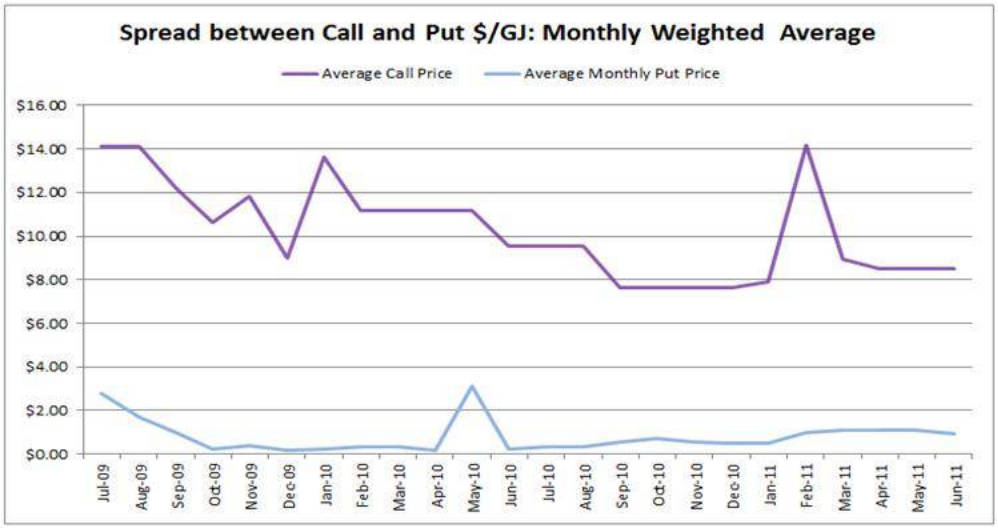

Figure 3 – put / call spreads over the past two years

6. Mokau Compressor fuel and UFG

6.1. Figure 4 below shows levels of fuel Gas and "Unaccounted for Gas" (**UFG**) between 2007 and the present.

6.2. UFG in a transmission pipeline results from metering error, quantities lost or reporting problems. UFG quantities reduced considerably in 2010 and during the first half of 2011, probably due largely to metering upgrades. Note that in general, MDL does not own meters on the Maui Pipeline and thus does not have direct control over them.

6.3. UFG can be broken down into two categories: systemic UFG and non-systemic UFG. Systemic error accounts for the portion of UFG that accumulates over time, while non-systemic UFG is the random error component expected in any system that is not 100% accurate. Generally non-systemic UFG balances out over a two or three Day period, but variations of up to 10TJ can occur between successive Days.

6.4. Fuel gas volumes have varied considerably since 2007, with 343TJ in 2007 (a year of particularly high demand) and only 140TJ in 2009 (a year of relatively low demand). Fuel gas costs increase disproportionately with increases in demand. MDL does not have direct control over these costs (in the sense that they're driven by Shipper

demand). It is worth noting here that, unlike a contract carriage system, under its common carriage system MDL does not generate higher returns from higher user demand; rather MDL is subject to what is essentially a revenue cap and any funds accrued over and above the allowable revenue is returned to Shippers via the tariff mechanism.

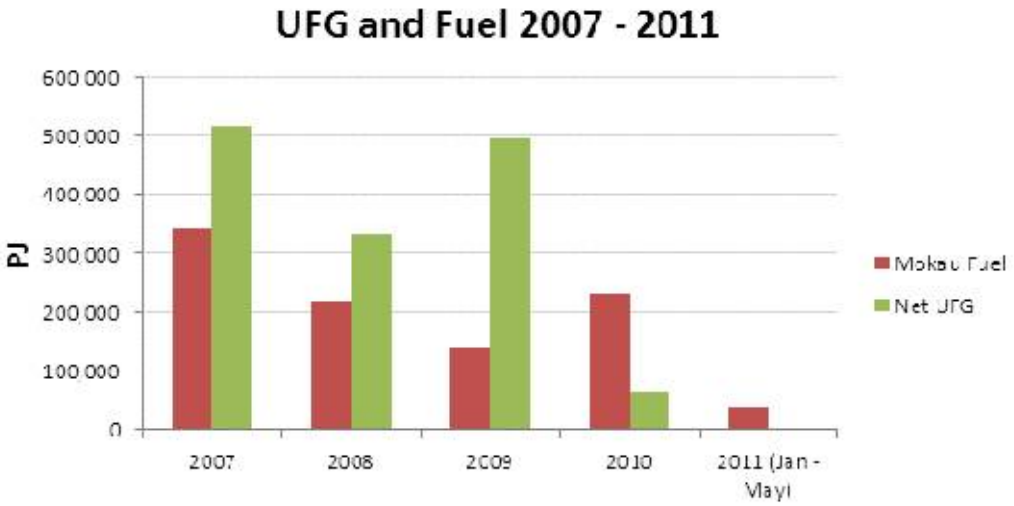

Figure 4 – fuel Gas and UFG volumes from 1 Jan 2007 to 31 May 2011

7. Self-balancing

7.1. MDL uses annual cash out volumes as a proxy to assess WP self-balancing activity. Where cash out volumes are high, MDL deduces that self-balancing levels were low, because parties allowed themselves to be cashed out instead of balancing their positions. WPs effectively have 2 Days under the current ILON process to correct excess ROI positions before MDL will cash them out.

7.2. Figure 5 below tracks cash out volumes on the Maui Pipeline since 2008, showing significant improvements in self-balancing during that period.

Cash Out Volumes (GJ)

Year	Buy	Sell
2008	1,268,634	2,280,154
2009	120,251	298,365
2010	117,202	126,453
2011 ytd	127,805	46,086

Figure 5 – cash out volumes since 1 Jan 2008

7.3. As well as managing their on-the-Day position by adjusting flows through nominations (utilising the four Intra-Day Cycles) WPs have a further MPOC tool at their disposal. That is, they can trade ROIs with other WPs. Trades can be carried out at any time when a WP's ROI is not zero: if the WP has a positive imbalance it

can trade all or part of that imbalance with a WP (including itself, in respect of another Welded Point) that has a negative imbalance, and vice versa.[6] Trades must be approved by the Commercial Operator, either manually or automatically. Once approved, they are effective immediately. MDL has been surprised at how little this facility has been utilised.

8. Interruptions

8.1. It should be noted that producer outages, which are the cause of approximately 90% of all interruptions on the Maui Pipeline, are beyond MDL's control. And since MDL has historically sourced most of its Balancing Gas from producers, during outages there is often limited Balancing Gas available to maintain security of supply.

8.2. Where the pipeline is losing Line Pack quickly and swift recovery is not expected, or the supply of Balancing Gas itself is impacted by outages contributing to low Line Pack, there may be little benefit in calling Balancing Gas – which in any event may only delay a Critical Contingency (or MPOC interruption) by a few hours, but which would represent a cost to industry.

8.3. The Balancing Agent assesses the cost / benefit of each balancing transaction; if the benefits of incurring additional costs are not apparent then no Balancing Gas is called. Simulation modeling exercises demonstrate that exercise of this discretion has saved the industry significant sums of money to date, at least when contrasted with the "no discretion" threshold balancing model as proposed by the GIC.

8.4. The Gas Industry Disclosure Regulations require MDL to report on reliability by tracking interruption hours, a measure of questionable value. Where the duration of an interruption is long but the degree of interruption is low (e.g. when only 5% of nominations are curtailed), timeframe-based analysis alone can be heavily misleading. Interruptions could be more accurately addressed by calculating the volume of lost supply. This is particularly so where only a small percentage of total Gas flow is interrupted.

8.5. Figure 6 below shows annual reliability levels based on assessment of both timeframes and degrees of WP-induced interruption. The data shows an improvement in curtailment hours from 86.5 to 50 hours from 2008 to 2009 but an increase to 156 in 2010. On a volume curtailed basis however, interruptions in 2010 were less than those in 2008.

[6] Note a WP cannot trade a quantity that would reverse the position of its existing ROI – i.e. if the WP has a positive ROI then after the trade it must either have a positive ROI or its ROI must be zero (in respect of the same Welded Point).

Year	2008	2009	2010
All hours from start of curtailment until end of day	86.5	50	156
Size of curtailment - GJ	297286	246327	260730

Figure 6 – reliability levels 2008-2010 (time vs. volume)

8.6. Although interruptions are largely beyond MDL's control they have not increased in recent years (if a volume measurement basis is adopted), suggesting that balancing developments have not prejudiced service reliability.

8.7. Though MDL cannot control over-taking or under-taking at Welded Points it can introduce compliance incentives to influence behaviour. The Balancing CR allocates a price to peaking reflective of the level of flexibility that the pipeline is physically capable of offering.

9. Access to Information

9.1. In implementing the Balancing Gas Exchange (**BGX**) and Incentives Pool charges MDL undertook to provide the following additional information to participants:

9.1.1. Real time Hourly Scheduled Quantity (**HSQ**) and Metered Quantities (**MQs**) by Welded Point.
9.1.2. Historic HSQ and MQs by Welded Point.
9.1.3. Real time and historic pressure and Line Pack for the Maui Pipeline and on Vector's Transmission Pipelines.
9.1.4. Real time and historic balancing transactions by Intra-Day Cycle.
9.1.5. D+1 and historic Incentives Pool Debits.
9.1.6. D+1 and historic cash out and OATIS trade information.

9.2. This information was provided in order to:

9.2.1. Facilitate WP self-balancing.
9.2.2. Provide signals to industry as to when balancing transactions will likely be undertaken.
9.2.3. Allow market participants to measure the performance of the balancing market.

9.3. These changes will be codified into MPOC on 1 September 2011 following the 18 April 2011 CR approved by the GIC.

9.4. The real time target Line Pack information now available to all Shippers and WPs provides greater transparency around balancing.

PART III: ANOTHER SYSTEM: "BACK TO BACK" BALANCING

1. Introduction

1.1. In Part II we observed the status quo. Part III details another framework: "Back to Back" balancing. This system appears to have emerged in recent years as the leading alternative to the status quo, in terms of industry preference. Set out below is a summary of the B2B "model" and package of changes that could replace the status quo if the industry so chooses.

1.2. Part III is structured as follows:

- Objectives of the Balancing CR
- Scope of the proposed changes
- A brief synopsis of B2B balancing
- The need for a complementary mechanism
- Post Intra-Day nominations
- Tolerances and their role in reducing socialised cost under a B2B regime
- Physical capacity and tolerances
- Codification of SOPs
- The Incentives Pool and WP claim mechanism
- Service reliability (the price / quality trade off)

2. Objectives of the Balancing CR

2.1. The primary objectives of the Balancing CR are as follows:

2.1.1. Enhance the "cost to causer" relationship in balancing charges, thereby reducing levels of socialised cost.
2.1.2. Cap B2B cost recovery at 100% of costs incurred.
2.1.3. Optimise system reliability by assigning a value to the peaking service that MDL provides.

3. Scope of the proposed changes

3.1. MDL notes the industry preference for dealing with separate issues discretely within the MPOC Change Request framework.[7] MDL believes however that that preference needs to be weighed against:

3.1.1. The increased cost and resources required to consult with industry on numerous small CRs.
3.1.2. The potential for confusion when various proposed iterations of MPOC are simultaneously under consideration.
3.1.3. The interrelated nature of certain MPOC provisions.

[7] Vector, Genesis, Contact, Mighty River Power: based on submissions on the GIC's 17 December 2009 MPOC Change Request: Draft recommendation, http://www.gasindustry.co.nz/work-programme/mpoc-change-request-17-december-2009?tab=1780

3.2. In order to find the right balance MDL has minimised the number of changes proposed in the Balancing CR. In doing so, MDL hopes that its streamlined CR is not criticised on the grounds that the proposed changes do not go far enough, or because MDL has not changed other provisions that some parties might think need to be changed. The proposed changes have been confined to those absolutely necessary for a move to the B2B model.

3.3. The Balancing CR is designed to offer industry a viable alternative to the status quo. As MDL has noted in the past, tolerances and peaking need to be addressed in the same CR as they are inextricably linked to balancing cost recovery. In particular, if tolerances were not reduced then, based on models generated using past behaviour, the industry would face significantly higher socialisation of balancing charges via tariff adjustment.

3.4. MDL understands that some participants fear that reducing tolerances will lead to an increase in total balancing charges. This fear is unjustified. Lower tolerances do not impact the volume of Balancing Gas required nor by extension the quantum of balancing charges. In fact the two matters are quite separate: tolerances bear upon primary (i.e. self-) balancing and cost recovery, whereas the balancing decisions that yield balancing charges are made based on real-time Line Pack conditions and how they sit with MDL's SOPs.

4. A brief synopsis of B2B balancing

Under a B2B system:

4.1. Cash outs only occur in respect of a Day where the Balancing Agent calls or puts Balancing Gas. This is fundamental and distinguishes B2B from a "daily cash out" regime, whereby all imbalances are cashed out at the end of the Day regardless of whether or not there was a balancing transaction.

4.2. The Welded Points cashed out are those with an AEOI at the end of the Day which is "in the same direction" as the balancing action taken (i.e. if call Balancing Gas is bought on the day, Welded Points with a negative AEOI will be cashed out). Welded Points with an AEOI "in the other direction" would not be cashed out.

4.3. This point negates the concern about the reduction in the size of the "safe harbour" created by tolerances. There is essentially an enormous "safe harbour" if a WP shifts its AEOI to be "in the other direction" to the balancing action taken. The net result of this is that even small balancing actions create a large incentive for users to correct their positions.

4.4. The total cash outs for the Day (expressed in GJ) across all Welded Points would not exceed the lower of:

4.4.1. the amount of Balancing Gas used on the Day (expressed in GJ); and
4.4.2. the total AEOI of all Welded Points with imbalances in the same direction as the cash out.

4.5. If there is sufficient Positive or Negative AEOI available for the volume of Gas cashed out to equal the volume of Balancing Gas used, then the volume of Gas cashed out at each Welded Point will be proportional to the size of its AEOI on the Day. Otherwise the cash out allocated to each Welded Point will be equal to that Welded Point's AEOI on the Day.

4.6. The cash out price will be the average price paid or received by MDL for the Balancing Gas used on the relevant Day (the "Mean Call Price" or "Mean Put Price").

4.7. Pulling these strands together, cost recovery from cash outs will never exceed the costs of buying Balancing Gas on a Day. On the other hand however, if there is insufficient AEOI available to cash out Welded Points to the full amount of Balancing Gas used, then MDL will not fully recover its costs – through the B2B mechanism alone – on the Day. That is to say, under a standalone B2B mechanism, the system as proposed would be biased toward "under-recovery" and therefore a bias towards transferring benefits from Shippers to WPs. This therefore indicates the need for a mechanism to balance this in built bias.

5. The need for a complementary mechanism

5.1. **B2B as a daily mechanism**: Under the proposed B2B mechanism WPs are cashed out based on their end of Day positions. It's important to note however that balancing transactions are typically undertaken during the Day, based on Line Pack positions *at the time the balancing decision was made*. Review of pipeline data shows an increasing propensity on the part of WPs to balance their AEOI positions by the end of the Day.

5.2. The MPOC requires[8] self-correction of AEOI, if a balancing transaction has occurred during the Day and causers have corrected their positions by the end of the Day to avoid cash out, there may not be sufficient AEOI to allocate the corresponding costs to "causers". If this is the case, the residual costs will need to be socialised or recovered in some other way. Furthermore, by calling or putting Balancing Gas MDL will have taken a position (either positive or negative); and this position will need to be either fully allocated via cash outs or balanced at a later date, to avoid the buildup of a positive or negative position on the pipeline over time. Put another way, if MDL cannot allocate all balancing costs via cash outs it will need to balance its own position at a later stage, either by calling or putting Balancing Gas to offset the accumulated position. This externality if not otherwise accommodated would lead to more balancing transactions than MDL considers efficient.

5.3. **MDL considered implementation of an hourly B2B mechanism**: Under this model, WPs would be cashed out based on their AEOI at the time balancing decisions were made. While this is an attractive proposition in terms of achieving a higher "cost to

[8] Section 12.9: "Each Physical Point Welded Party shall use its reasonable endeavours to manage the flow of Gas at each of its Welded Points so that its Running Operational Imbalance at each Welded Point tends towards zero over a reasonable period of time."

causer" correlation, it has not been included in the Balancing CR for the following reasons:

5.3.1. Costly OATIS changes would be required.
5.3.2. Monitoring of positions on an hourly basis would likely result in increased operating expenses for MDL, Vector and other Parties.
5.3.3. A large portion of Gas users do not have the metering technology or systems in place to manage their positions on an hourly basis.
5.3.4. "International best practice" literature confirms that a pipeline owner should weigh the costs of moving to an hourly system against the benefits of doing so.
5.3.5. Balancing costs account for a miniscule portion of total gas costs. Expending the extra cost and other resources associated with moving to an hourly system is not currently justifiable.

5.4. MDL acknowledges however that the move could be considered in future, once MDL has had the opportunity to assess the workability of the daily B2B model. Leaving that possibility aside for now, it is nonetheless clear that there needs to be some mechanism in place to:

5.4.1. Reduce the socialisation of balancing charges.
5.4.2. Discourage participants from utilising more Intra-Day flexibility than is physically available on the Maui Pipeline.
5.4.3. Fund future costs associated with maintaining pipeline pressure when demand is volatile (particularly as new peaker facilities are built to replace current base load generation).

6. Post Intra-Day nominations

6.1. MDL notes that a B2B framework would not function effectively on the Maui Pipeline if Shippers were able to make post Intra-Day nominations from Welded Points to eliminate imbalances and avoid balancing charges. MDL as the Balancing Agent does not have this ability, although section 8.17 of the (current) MPOC allows TP WPs to make post Intra-Day nominations as long as certain conditions are met. While this facility has never been used, it could substantially jeopardise MDL's objective of allocating costs to causers. MDL proposes to remove this facility in its Balancing CR. While this would not prevent Shippers from making balancing nominations, they would be required to utilise the same Intra-Day nomination system that MDL's Balancing Agent currently utilises.

7. Tolerances and their role in reducing socialised costs under a B2B regime

7.1. In 2006 the European Regulators Group for Electricity and Gas (**ERGEG**) developed "Transmission Pipeline Balancing Principles"[9], which it used in turn to develop the

[9] "Gas Balancing: An ERGEG Conclusions Paper," E06-GFG-17-03, 20 April 2006. The principles were used, in turn, to develop the "Guidelines of Good Practice for Gas Balancing".

"Guidelines of Good Practice for Gas Balancing", recognised internationally as representing best practice. These Principles are set out in the Appendix.

7.2. Principle five states that "tolerance levels weaken balancing incentives". Similarly the GIC noted in its Transmission Pipeline Balancing Issues paper[10] that "if costs can be recovered from users, who cause balancing actions to be taken, then self-balancing is encouraged and balancing costs may be reduced". The GIC also identified a general industry agreement that the "causer pays" principle should apply to balancing.

7.3. Where tolerances are allocated separately to WPs (rather than to the pipeline) those WPs can cause balancing costs without being allocated a portion of the corresponding costs.

7.4. The GIC has concluded that: "In regimes where there is a penalty element incorporated in imbalance fees – such as with automatic cash-out or when penalty fees are applied when tolerances are exceeded – a case can be made that tolerances are efficient. However, if the cash-out of imbalance positions is always back-to-back with a balancing gas transaction, the line pack flexibility is effectively fully used at all times, so the benefit of that inherent flexibility is automatically shared among users. In this situation the rationale for [individual WP] tolerances is not so clear".[11]

7.5. Out of the GIC's analysis came an impetus to move to B2B balancing. In December 2009 MDL responded by putting forward a CR proposing the introduction of a B2B facility. For various reasons that request was rejected. Now that there appears to be a renewed appetite within the industry for this system, MDL proposes to put forward a simplified version once again.

7.6. The GIC has argued that "the sum of individual tolerances must not exceed the inherent balancing flexibility (because balancing costs will be socialised if it does)". This is correct. However, it needs to be recognised that socialisation can arise no matter how low ROIL tolerances are, because a WP can correct behaviour by the end of the Day and thereby avoid balancing charges.

7.7. If – as past experience in tightening compliance incentives suggests – reducing tolerances causes WPs to improve self- balancing, then by extension there would be less balancing intervention and lower overall balancing costs. On the other hand, if tolerance reduction does not lead to improved self-balancing (contrary to past experience), there would be no effect on balancing volumes. The only difference would be a better targeting of costs to causers. Therefore it would appear that there is no downside in reducing ROIL tolerances in terms of total annual balancing costs.

[10] Page 11, Gas Industry Company, "Transmission Pipeline Balancing Issues", August 2008
[11] Page 11, Gas Industry Company, "Transmission Balancing Options paper", July 2009

7.8. MDL agrees with the ERGEG statement (noted by the GIC[12]) that "flexibility tools should be made available on a non-discriminatory basis reflecting the underlying technical characteristics of the transmission system."

8. Physical capacity and tolerances

8.1. As demonstrated in Figure 7 below, simulation modelling of pipeline data reveals that were a B2B system to be implemented without corresponding reductions in ROIL tolerances, "cost to causer" levels would likely be lesser (i.e. resulting in greater socialisation) than under the status quo. With ROILs set at 1% of Scheduled Quantity or 1000GJ (whichever is higher) MDL projects it would recover as little as 82% of balancing costs. Actual recovery could inevitably be higher or lower, depending on the extent to which participants recalibrated their behaviour to the new system.

Tolerances	Current behaviour	OI reduces to 50% of current	WPs self-correct by end D+1	OI reduces to 50% and WPs self-correct
3% or 3000GJ	99%	93%	67%	43%
1% or 1000GJ	100%	100%	98%	82%
No tolerances	100%	100%	99%	99%

Figure 7 – cost recovery under B2B given various behavioural scenarios

8.2. Opposition to reduction or removal of ROILs has historically been premised partly on a belief that reducing pipeline flexibility will result in more balancing transactions, and higher total balancing costs. In response to this, MDL notes that reducing tolerances in no way reduces the flexibility of the pipeline, it simply reallocates that flexibility to the benefit of all pipeline users rather than individual WPS. Further adjusting tolerances provides no justification for altering the parameters governing how it makes balancing decisions.

9. Codification of SOPs

9.1. MDL notes from submissions on the rejected December 2009 CR that within the industry there is a desire for MDL to codify its SOPs. MDL believes that this has been requested in order to prevent MDL from having the ability to reduce its balancing thresholds – and in doing so increase its revenue from balancing activities.

9.2. Current MDL balancing requirements are shaped by MDL's obligation to plan in setting target Line Pack to maintain Target Taranaki Pressure (**TTP**) at the Bertrand Road Welded Point. This represents a degree of codification, although again MDL reiterates that pipeline conditions are not fully within its control.

9.3. Plainly there is no gain to MDL in increasing balancing income. Nor is it expected that this will change when pipeline income is regulated by the Commerce Commission next year and beyond.

[12] Page 25, ERGEG, "Gas Balancing: An ERGEG Conclusions paper", April 2006

9.4. MDL has undertaken simulation modelling to compare current balancing volumes to those required under a strict threshold balancing regime. The results show that deliberately limiting the discretion of the TSO will lead to an increase in costs to be borne by the entire industry.

9.5. MDL advises against codification of its SOPs. MDL has purposely maintained discretion in its SOPs to enable the System Operator to make balancing decisions based on a wide range of circumstances. Discretionary considerations include (but are not limited to):

9.5.1. Rate of Line Pack loss or gain.
9.5.2. Changes to nominations in successive Intra-Day Cycles.
9.5.3. Up to date information on timeframes associated with producer outages.
9.5.4. Whether a Critical Contingency is likely.
9.5.5. WP ROIs, behaviour patterns, and expected pay-back timeframes.

10. The Incentives Pool and WP claim mechanism

10.1. Consistent with MDL's light handed approach in compiling the Balancing CR, the WP-to-WP Incentives Pool mechanism has been left unchanged. The Balancing Agent claim facility has however been removed and has been replaced with two, complementary mechanisms: B2B cash out (which relates solely to cost recovery) and a peaking charge (which seeks to recover otherwise unrecovered balancing costs while also setting a price signal to reflect the scarcity of Line Pack flexibility).

11. Service reliability (the price / quality trade-off)

11.1. MDL sets reliability standards through capital expenditure decisions (to set an appropriate level of capacity) and operating expenditure decisions (to optimise that selected level of capacity).

11.2. **CAPEX decisions**: There has never been a capacity related curtailment on the Maui Pipeline. In other words, where a Shipper makes a nomination to transport Gas, in no case has that nomination ever been rejected on account of a capacity constraint.

11.3. It would appear therefore that the current level of investment on the Maui Pipeline is acceptable based on existing demand. MDL constantly monitors changes in forecast demand, with dry years forecasted as the worst case scenario, to determine whether new investment may be justifiable.

11.4. **OPEX decisions**: MDL utilises Balancing Gas (subject to availability and a continuing industry preference that MDL balance WP imbalances) seeking to stabilise Line Pack. This is of course subject to a trade-off of benefit versus cost. It should be noted that MDL does not benefit from the decision to balance or not to balance, and that it will earn its allowable rate of return on its asset regardless of the volume of Gas that flows through its pipeline. MDL makes balancing decisions to enhance Line Pack stability in the system and because its customers want MDL to do so, for their benefit.

11.5. The issue with Line Pack stability is the exponential increase in costs associated with balancing to a higher stability threshold. MDL could refrain from balancing WP imbalance given that the Critical Contingency Regulations also address low Line Pack. On the other hand, MDL could utilise Balancing Gas to ensure that the pipeline does not deviate significantly from target Line Pack. This might have the effect of ensuring that there would almost never be an interruption. This however might require daily balancing transactions to continually top up Line Pack, which would come at a significant cost to the industry.

11.6. The "middle of the road" approach would be to hold off on balancing transactions in anticipation of WPs self-correcting their positions, as they are required to do; and only balancing when the case for balancing is clear. The upside of this would be reduced costs. The downside is the occasional interruptions or events that might have been otherwise avoidable. Like any viable solution, it would represent a trade-off.

PART IV: "OWN USE" GAS

1. MDL has reviewed the "cause" of balancing transactions and notes the GIC's work in relation to "own use gas", being gas that relates to balancing transactions that are caused by factors other than WP imbalances.

2. In July 2009 the GIC published a paper that distinguished "own use" Balancing Gas from Balancing Gas used to balance WP behaviour. GIC defined "own use gas" as gas "*…not provided for in a contract between a TSO and a third party, and may include gas used by the TSO in compressors and line heaters, losses, provision or adjustment of Base Linepack and unaccounted for gas*".[13]

3. MDL recently conducted its own study of "own use" imbalance. From that study and the GIC's "own use" formula, MDL extrapolated the following factors at play:

    3.1. **Systemic UFG:** accumulates (or declines) over a significant period of time.
    3.2. **Non-systemic UFG:** random fluctuations from positive to negative caused by meter errors.
    3.3. **Mokau Compressor nominations:** made from the Payback Point and taken from Line Pack.
    3.4. **Balancing Gas**: put Balancing Gas will likely create a later need for call Balancing Gas.
    3.5. **Cash outs:** when MDL takes possession of Gas, it owns Gas in the pipeline which it must sell via a balancing transaction.
    3.6. **Changes in target Line Pack:** if nominations suddenly increase, target Line Pack can increase by up to 20TJ on a Day.
    3.7. **Welded Party imbalances:** within a WP's tolerance limits.
    3.8. **Small Welded Point imbalances:** accumulate but are settled once per month.

4. "Own use gas" is not, in fact, "own use" taking the natural meaning of those words. These items are:

    4.1. Unpredictable.
    4.2. Beyond MDL's control.
    4.3. Not for MDL's benefit (i.e. not "own use" but for the use of customers) – MDL does not benefit in any way from increased (or reduced) demand on the Maui Pipeline.
    4.4. Considered part and parcel of normal balancing activities.

5. Because "own use" includes non-systemic metering errors from daily fluctuations of UFG – and meters are generally not owned by MDL – "own use" imbalance can fluctuate by up to 20TJ (from +10TJ to -10TJ) over two Days, a phenomenon that's entirely beyond MDL's control.

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[13] Page 86, Point O "Outline of regulations required to implement the prescriptive regulation option A", http://gasindustry.co.nz/sites/default/files/consultations/12/Transmission_Balancing_Second_Options_Paper_150672.2_1.pdf , 17 July 2009

6. Under the current OATIS system “own use” can only be calculated on a daily basis, while balancing decisions are made based on hourly considerations. This limits MDL’s ability to determine whether a balancing transaction is truly “own use” related or WP related.

7. Before 2010, systemic UFG tended to be a significant gain to the Maui Pipeline. In order to minimise fuel Gas costs MDL sourced a portion of its fuel from UFG. Since 2010 however, systemic UFG has largely disappeared; and so it is no longer possible to source fuel gas from it. In lieu of this approach MDL intends to nominate fuel Gas from physical Welded Points to meet its requirements in the future.

PART V: THE COUNTERFACTUALS

1. Introduction

1.1. If the industry opts not to implement a B2B system, possible alternatives are:

1.1.1. Status quo balancing.
1.1.2. Optimised status quo balancing.
1.1.3. Balancing regulation.

1.2. Each of these is discussed in turn below.

2. Status Quo

2.1. Part II above traces the developments MDL has pursued in the balancing sphere since Open Access began. MDL believes the status quo is acceptable though not ideal for the reasons detailed in Part II.

3. Optimised status quo

3.1. One option MDL has considered and continues to consider is changing the current balancing framework by making "small tweaks" to existing MPOC flexibility provisions – an option MDL refers to as the "optimised status quo".

3.2. MDL's obligation to plan for a pressure range of 42 bar g to 48 bar g (at Bertrand Road) allows for around 40TJ of operational flexibility. Under current tolerances, delivery WPs alone can cause a 50TJ (or greater) swing in Line Pack while remaining within their tolerances (thus avoid incurring balancing charges). This leaves no flexibility to the System Operator with which to manage swings in demand and at the same time absorb random error in the system. Again, this causes upward pressure on balancing costs.

3.3. The optimised status quo option would likely involve submission of a CR to reduce tolerances, leaving all other parts of MPOC untouched.

3.4. In MDL's view a reduction in tolerances, as a standalone change, would:

3.4.1. Enhance the pipeline's ability to absorb swings – and thereby improve Line Pack stability – by reallocating flexibility from WPs to the pipeline operator.

3.4.2. Incentivise better self-balancing behaviour. Past experience shows a positive correlation between the tightening of incentives and self-balancing levels.

4. Regulation

4.1. Balancing regulation is in MDL's view a costly alternative only to be considered under extreme situations of demonstrated market failure. Evidence of market inefficiencies – caused by a lack of liquidity in the balancing market – should not be

confused with market failure. MDL believes that regulation is undesirable for the following reasons:

4.1.1. It is not necessary. The status quo strikes an effective balance between sending clear market signals to industry and maintaining enough discretion to minimise costs through "case by case" decision making.

4.1.2. ERGEG principles contemplate a TSO performing balancing agent activities. It is also considered normal for MDL to balance Vector's networks given that Balancing Gas "filters down" from the Maui Pipeline.

4.1.3. It is difficult for regulation to resolve such complex issues as:

(a) Tolerance levels.
(b) Peaking mechanisms.
(c) WP to WP claims.

4.1.4. Regulation cannot be justified on a cost-benefit basis:

(a) When GIC first considered a regulatory solution, balancing transaction costs were estimated to be around $20 million per year.[14] GIC assessed that by implementing regulation, expected savings (in terms of transaction costs only) would be around $10 million per year.[15] Balancing costs have reduced to the extent that total transaction costs are now in the vicinity of $2 million per year.
(b) Establishment of a single, independent balancing agent is likely to require significant capital expenditure and higher on-going overhead costs.

4.1.5. Regulation is not the most appropriate solution in an area which is constantly evolving. Uncertainty as to future requirements is driven predominantly by:

(a) Increasingly volatile gas demand.
(b) Uncertainty as to future levels of demand (at a macro level).
(c) Constantly evolving systems which may in the near future permit evolution of the balancing framework to an hourly regime.

[14] Gas Industry Company, "Transmission Balancing Options Paper", December 2008, p.21
[15] *Ibid*

APPENDIX: INTERNATIONAL BEST PRACTICE – THE ERGEG PRINCIPLES

1. **Balancing responsibilities:** Provide commercial incentives to self-balance.
2. **General requirements for balancing rules:** Transparent and non-discriminatory rules which facilitate competition.
3. **Frequency of balance:** A balancing period that reflects the level of flexibility available to participants to mitigate their risks and manage their positions.
4. **A: Balancing costs**: TSOs to be revenue neutral in regards to balancing actions. Charges for imbalances: cost to causer**.**
   B: Trading of imbalance positions: allow trading of imbalances**.**
5. **Tolerance services:** As a practical means for handling uncertainties.
6. **Information and transparency:** Provide participants with timely, accurate information.
7. **Harmonise with balancing rules:** Ensure compatibility with other networks.
8. **Provide flexibility:** Flexibility services and tools reflecting the underlying technical characteristics of the transmission system should be made available to shippers on a non-discriminatory basis.