Submission on MPOC Change Request October 2014

New Zealand Steel Limited
24 November 2014

Introduction:

New Zealand Steel Limited operates a fully integrated steel mill at Glenbrook, South Auckland, producing a large range of steel products for the local and export markets. It is a wholly owned subsidiary of BlueScope Steel Limited of Australia. New Zealand Steel wishes to make a submission to the Gas Industry Company Limited (GIC) on the Maui Pipeline Operating Code (MPOC) Change request October 2014.
New Zealand Steel is also member of the Major Gas Users Group and supports the submission made by the group.

Background:

Natural gas is consumed at the New Zealand Steel Glenbrook site in a variety of processes associated with iron and steelmaking, and steel rolling and finishing operations. Site consumption ranges from 1.8PJ to 2.2PJ per year. The predominant use of natural gas is in the Hot Strip Mill Slab Reheat Furnace, which consumes approximately 50 % of the gas delivered to site, or 1PJ per year. Other uses consume considerably less volume and are distributed widely across site.

While the predominant use of natural gas at New Zealand Steel is as an energy source, natural gas is also used for specialist purposes such as a coolant in the steelmaking process, and for influencing the ironmaking chemical process if required.

NZ Steel, as an industrial end user of gas, has an energy balancing team which has responsibly provided gas nominations on a daily basis using the various cycles to balance its gas use since May 2007.
NZ Steel has shown its commitment for improvements in the design of transmission balancing, by providing submissions in this regard, either individually or as part of the Major Gas Users Group, as well as being an active member of the Industry Code Development work in 2009.

Summary:

1. CR focuses on the proposed market based solution but does not consider the impact on balancing.
2. Proposal involves a significant change moving “cash outs” from D+2 to D.
3.Implementation of the proposed daily cash-out is likely to exacerbate pipeline imbalance issues, yet the CR does not attempt to identify unintended consequences or impact on users.
4. CR fails to acknowledge the Industry working group and motivation to address imbalance issues.
5. The proposal selectively draws in the EU code without providing for an improved nominations regime

Submission:

New Zealand Steel has reviewed the, MPOC Change Request (CR) 2014, and associated documentation, and acknowledges the implicit intent i.e. to continue to strive to attribute equitable costs to those who cause transmission system imbalances.

We note that Maui Development Limited (MDL) repudiates the need for further delay by gas users as stated in 2.11 of their application but we have nevertheless observed constructive dialogue in the parallel work stream for Pipeline Management which is taking place which we are actively participating in, and have the firm belief that this is the correct path to take.

We believe the co-regulator, the Gas Industry Company (GIC), who appears beholden by the Memorandum of Understanding it has with the Transmission System Operators, is conflicted to support a CR which may result in a change to gas governance arrangements which have neither been proved to be fair nor efficient.

Furthermore, we need to emphasize industrial end users with variable daily gas consumption profiles have limited options to respond as the system rules tighten. Constraints imposed by moving from a “D+1” to a “back to back” market based balancing regime, coupled with the severe reduction of tolerances at welded points is overly restrictive for self balancing and will cause operational difficulty and potentially impose penalty charges.

There are some within the gas industry who cannot understand our involvement in transmission balancing regulatory policy formulation. It is for the very reason of potential change which could have added significant cost viz. incentive pool debit charges that we took the first step for any large scale industrial end user to become involved following the December 2008 changes introducing a penalty regime. It is for the same reason and recognition now that this may happen again without the potential outcomes properly considered and accounted for in the relevant proposed changes to the MPOC that we make this submission.

We disagree with the recommendations proposed by MDL regarding drastic systemic changes, as whilst these may be seen as a panacea for cost recovery and incentivizing balancing at a shipper level they do not address the root cause of the problem of non alignment in pipeline balancing practices. In fact the CR appears to

have little regard for the latter as evident by the lack of neither reference nor discussion within the CR on this matter. The Outline of a Cost Benefit Analysis (OCBA) commissioned by the GIC considers the effects but we consider that more work is needed to fully evaluate them.

We believe an approach that addresses the inactions of those users on the pipeline who do not monitor and / or correct their balancing position, and results in alignment of balancing practices of users, is more appropriate and would result in a better outcome for all parties.

The CR has the potential unintended consequence of increased pipeline imbalance resulting from the proposed "improvements" for Market Based Balancing (MBB). Reducing the deadline for "cash outs" by 48 hours has the potential to exacerbate "swing", already observed on the pipeline, as parties faced with the potential of "cash outs" over react to avoid them.
The OCBA recognizes under its review of B2B regime that "...*could make pipeline conditions worse*" after a balancing action but fails to translate this to its evaluation of MBB on the basis that "cash outs" will occur regardless and therefore all parties will have "*strong incentives to achieve balance*" by the end of the day. In practical terms this may not happen and over correction could still occur.

The OCBA appears to have a heavy focus on the effect of the CR on shippers. but not for the influence on pipeline balancing of industrial and downstream end users. Tolerances are to be lowered by 90% for the Rotowaro Welded Point. A "soft landing", however, will be implemented as a transitional measure to temporarily increase them until at least September 2016. It would appear that there may be a longer term intention to completely remove them to emulate the European model MDL appears to be basing this on. This will result in a higher frequency of perceived imbalance and as it results in additional charges where none may have existed before and for little to no benefit, particularly if a balancing action has taken place. Yet, if MDL wishes to move towards the European model there are aspects in the European code which would promote self balancing which should have been considered with similar mechanisms bundled into the CR e.g. Article 15.1 details the greater opportunity there is to re-nominate on the day on the European gas network

> "*A network user shall be entitled to submit re-nominations within the re-nomination period which starts immediately after the confirmation deadline and ends no earlier than three hours before the end of gas day D. The transmission system operator shall start a re-nomination cycle at the start of every hour within the re-nomination period."*[1]

The current and proposed system in New Zealand makes no effort to consider any alteration to the nomination cycle time which ends 7 hours before the end of the gas day and whilst has 4 cycle times during a day given the time of the day at which these occur really has only 2 "useable" cycle times viz. ID3 and ID4, yet it brings the "cash out" time 48 hours earlier!

In this context the influence of the electricity spot market on the volatility of users natural gas profiles and their ability to account for this in balancing needs to be considered. By the very diurnal nature of the spot market this has the potential to impact on gas balancing.
This impact will be more pronounced at times when the electricity price is higher than normal which includes longer tem effects such as "dry years" due to constraints in south island hydrology or shorter term constraints such as increased demand in winter, generation outages for maintenance, or grid constraints resulting in increased

[1] COMMISSION REGULATION (EU) No 312/2014

thermal generation in response to make up the shortfall.
The effect is more pronounced and of greater duration in the evening peak which is broadly between 1630 to 2000 hours but may be extended due to volatility of electricity spot prices.
As the majority of this occurs after the last opportunity to balance at ID4 which closes at 1700 hours (or 1600 hours for end users to nominate to their shipper) there is no opportunity to correct a nomination which is rendered inaccurate should there be a marked change in actual increased gas use against that scheduled, and previously nominated for, as a result of reaction to electricity market volatility.

Although we acknowledge MDL having had said that they can move cycle times, in the past, they are silent on doing so within this request.

In a publication pre-cursing MBB earlier in the year, however, MDL states

> :.. *users have the primary responsibility, backed by incentives and corresponding tools, to balance the system*." [2]

The OCBA notes

> "*Although parties will want to balance daily, there is no apparent improvement in the information and / or tools available to them to achieve this."*

So as we have said in previous submissions additional cycle times are needed should the "cash out" time be brought forward from the current position in order for end users to be able to respond.

Targeting Equitable Cost Recovery by Earlier "Cash outs" - Impact

New Zealand Steel considers primarily there is a need to address the inactions for pipeline balancing of the various users on the pipeline to make an improvement. This will not be directly achieved by implementing the current MBB request. Whilst the current request may improve the efficiency of cost recovery at market based prices there is little reassurance that it will not cause problems due to potential unintended consequences

There is a long peddled mantra, that there needs to be an incentive to attribute cost to causer and by inference achieving this pipeline balancing will improve. This assumption is not necessarily correct as one may presumes it is based on a number of premises including

- all users are able to self balance equally, and
- by incentivizing by moving to B2B or MBB they will do so, and
- there is sufficient provision to do so

There is a need for consideration of risks primarily the potential for a cumulative overreaction to avoid "cash outs".

By implementing MBB without consideration of these themes all it does is place the onus more on shippers to resolve pipeline balancing problems out by the mechanism of cost pass through to end users and which in fact does nothing for self balancing. In addition, by imposing a penalty where no balancing action takes place will result in the socializing of any cost over recovery which is replicating the current inefficiency of socializing under recovery back into the Maui tariff. We disagree with "cash outs" for where no balancing action occurs.

[2] The types of pipeline balancing and related concerns" MDL Commercial Operator, 8 April 2014

Are all users able to self balance equally?

If so it presumes all users are able to exactly match their scheduled and actual quantities exactly via the nomination process. It questions some of the fundamental issues necessary for balancing including

- some end users do not monitor and or adjust their nominated quantity in tandem with the various cycle times
- some shippers do not permit balancing on some of the cycles or have restrictive nomination closure times ahead of Maui cycle closure times
- a poor understanding of gas use variability by nominator or shipper may exist for a number of reasons including insufficient metering, over complexity of numerous gas uses, or lack of process knowledge by the nominator.
- (On a shipper level) there may be difference in performance to self balance for reasons from the unknown balance position of the mass market without TOU metering to issues associated with their portfolio of end users.

We consider the exercise of identifying those users of the pipeline who provide insufficient balancing action(s) on the network, as being a simple one providing there is participation amongst users. Whilst we understand that there may be some difficulties in doing so across the networks, due to the lack of visibility, we believe that by adopting a cooperative approach between Maui Development Limited (MDL) and Vector, this may be easily overcome. Once this has been achieved the cause of why some consumers are not correcting their imbalances may be examined in further detail and an appropriate methodology for addressing this may be identified. If following this approach it has been determined that there has been a limited response then further adjustments can be made.

A measure of success AEOI = zero with TTP between limits

Balancing actions are judged to have worked if the AEOI is at zero.
The target under the CR is to have an AEOI cashed out to zero albeit for the interim allowances for tolerances. Balancing actions are also judged to have worked if the TTP is between 42 and 48 bar g. Consequently one would logically conclude if the AEOI equals zero the pipeline pressure should be maintained at the TTP being between 42 and 48 bar g. Yet currently there is the occasional anomaly when the link between the two metrics is somewhat tenuous and exacerbated by the TSO actions in producing ILONs which create a conflict between what is deemed as good for the pipeline and what type of behavior this action incentivizes.
Before we ask the relevancy to the CR we need to understand the issue.

One does not need to look far for examples, in fact at time of writing there is one from the previous day 17th Nov 2014 which demonstrates this quite clearly.
Just after midday at 1224 an ILON was issued for the Pokuru welded point of 3,041GJ. Similarly at 1227 an ILON was issued for the Rotowaro welded point of 11,598 GJ whereas its opening running operational imbalance was very high at 19,466 GJ noting the current tolerance is 10,000GJ combined for Rotowaro, Pokuru, and Pirongia.
From this imbalance and the issue of the ILONs there were clear signals that there was too much gas in the pipeline and that action was needed to be taken by those end users downstream of the welded points to reduce this.
The chart from OATIS for the Rotowaro welded point Fig 1.illustrates this including that at the time of the ILON being notified steps were already being taken to do this.

On the contrary the TTP was very low with the opening day's pressure for the 17th November to be below the minimum pressure, see Fig 2, rendering it questionable whether balancing to satisfy AEOI would be beneficial. Following notification of the ILON, despite some pressure recovery in the morning the incentive to shed was evident with the pressure falling again with it dipping below minimum pressure for 5 hours yet the clear instruction for action would exacerbate this.

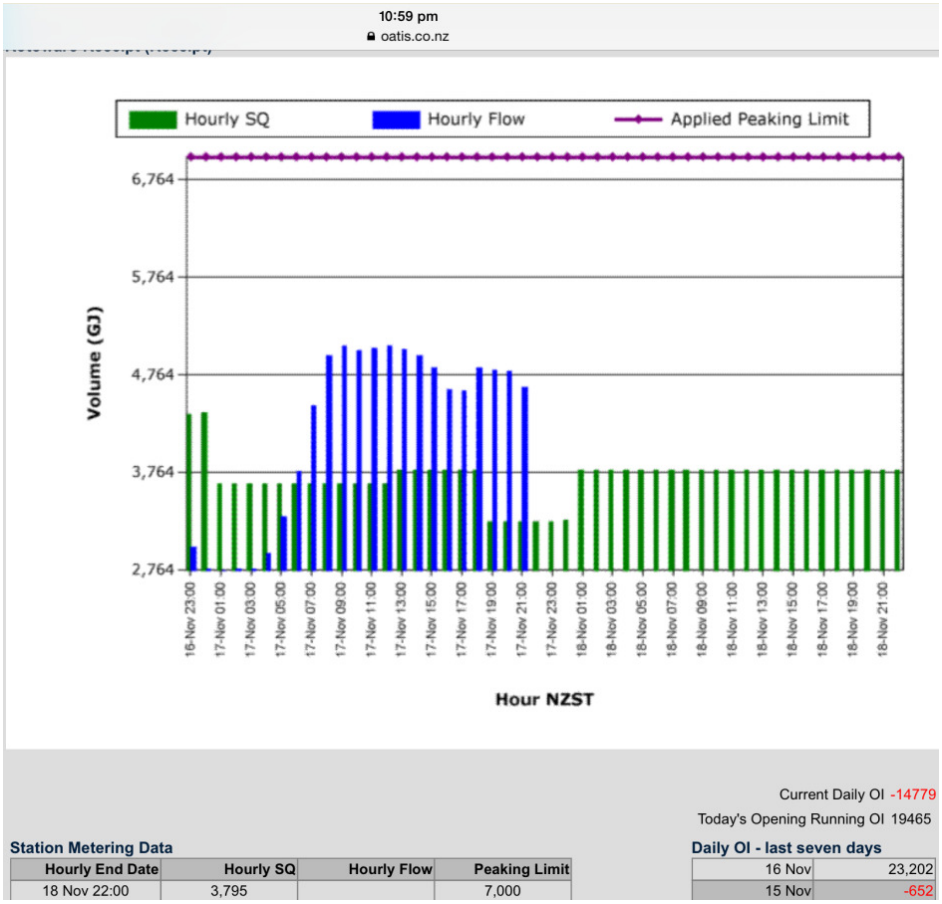

Fig 1. Vector OATIS Station Metering Details - Rotowaro

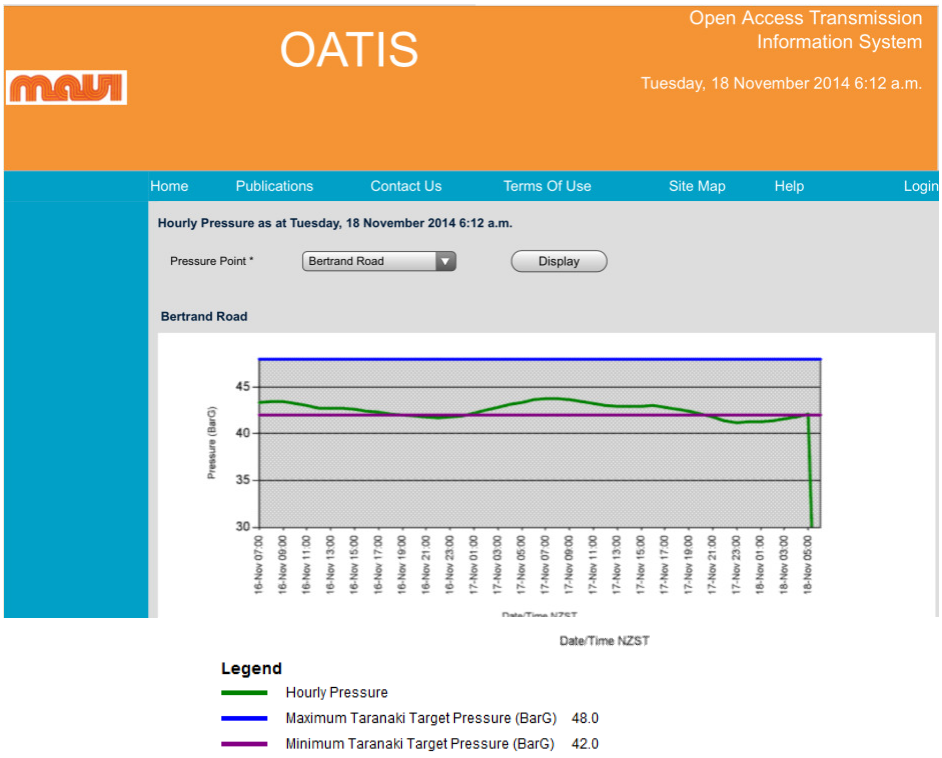

Fig 2 Maui OATIS Hourly Pressure Graph – Bertrand Road

One could broadly deduct that if this situation can occur now where the current construct unintentionally sends instruction for all users to make a counterproductive change then what could we expect in the new MBB regime which has not been modeled? Note we consider modeling is not possible given there will be a behavioral response by all users, to the earlier "cash out" time, hence it is difficult to predict.

The way forward

Once after identifying and addressing the issues restricting self balancing in the parallel work stream, "Pipeline Management", and there are still significant imbalance issues and poor cost recovery then we consider "back to back" balancing with tolerances should be considered. Whilst we do not believe gas should be" parked" on the pipeline we believe, by design, the high pressure pipeline allows for a modicum of tolerance.
We, however, feel that it is more appropriate to provide all the tools for better self balancing first, and then make an assessment, after an appropriate period, if further changes are necessary.

Finally, irrespective of what is adopted we believe that monitoring of balancing performance should take place to assess the effects of any implemented changes with the changes taking place in a staged manner where practicable.

Note we have attached the submission, Appendix 1, we made 5 years ago on transmission balancing and whilst the industry may have moved on in some regard the broad themes discussed in the submission are still relevant now.

Appendix 1 –

New Zealand Steel's submission to the GIC on its Transmission Pipeline Balancing Statement of Proposal Paper in October 2009

Submission:

New Zealand Steel (NZS) has reviewed the Gas Industry Company.s (GIC) Statement of Proposal Paper published in October 2009, participated in the GIC Industrial Code Development process for a Natural Gas Balancing Policy, and is in general agreement with the recommendation made by the GIC to adopt the Participative Regulation Option as described in the paper.
Following the changes to the Maui Pipeline Operating Code (MPOC) since they came into effect on the 12th December 2008 it has been clearly apparent that the mechanics and outcomes of pipeline balancing are misaligned with the primary goals as defined by the GIC in their 1st Transmission Balancing Options paper as criteria for assessment of balancing options.
These are:-
the relevant service standard is that pipeline pressures should be maintained within an appropriate band, both for safety and so that transmission services are not interrupted; and the relevant aspect of .economic efficiency. is that balancing is achieved at least cost
This submission will not necessarily restate previous assertions made in NZS Submissions addressing the GIC.s various published papers, addressing the shortfall in current pipeline balancing, instead it will briefly attempt to reiterate these and illustrate the requirements and framework necessary for an industrial end user to responsibly perform balancing actions in the following section followed by a section responding to the questions posed by the GIC.

Transmission Pipeline Self Balancing . Role of nomination cycle timing

NZ Steel makes its submission from the perspective of an integrated industrial end user of natural gas with a unique profile of gas usage. Initially, we detail our concerns, as such, where we believe we may best contribute to the development of an improved balancing policy.
While we have opinions regarding the higher level architectural change of a unified balancing regime and the necessary requirements to augment such a regime we believe this is more a consideration for Transmission System Operators and shippers who have, respectively, greater sway over the outcome to such a move.
While NZ Steel has an average daily natural gas consumption of approximately 5.5 TJ, the daily profile, however, ranges from being mildly variable to erratic, reflecting the batch and episodic processes associated with its use.
This can result with a daily upper and lower limit of 2 and 10 TJ respectively.
Changes in rates of consumption can occur anytime during the day for numerous reasons all of which are not necessarily predictable and can result in significant mismatches between nominated scheduled quantities and actual consumption.
While we endorse that the principle of attributing balancing costs to causers should be firmly incorporated in Balancing Policy there needs to be consideration on how to accommodate end users with a high degree of variability within their consumption profile. While we are open to suggestions on this matter we consider the best possible way to accommodate users with such high degree of variability is to provide them with the ability to change their scheduled quantity of gas take, in line with this variability i.e. via the nomination process. This gives them the opportunity to participate in .self balancing., and thereby provide other pipeline users the benefits of performing this action. Realistically, this brings into focus the role the intra-day

nomination process has to play, which currently, NZS generally only uses the ID3 and ID4 intraday nomination cycles.
Little opportunity currently exists for personnel, assigned to this task, to update and improve their accuracy of the predicted schedule quantity as the day progresses. The last opportunity of the day, (to update the daily nomination to the shipper), is at 1600 hrs, for gas flows for the effective period from 1900 . 2359 hrs. This is severely limiting for an industry subject to variations of the type and nature previously outlined. If the timing of intraday cycles were readily accessible and usable, pipeline users would provide additional adjustments to their scheduled quantities to match their consumption resulting in better self balancing of the pipeline.
We acknowledge there is a cost inherent by incorporating an additional cycle within OATIS and therefore we consider that if this proves an unviable option (cost/benefit) the issue can still be significantly mitigated by moving the effective timings across the working day to facilitate additional balancing flexibility.

For example the effective cycle timings could be as follows:
Proposed vs Original
ID 1 0700 2359
ID 2 1200 0700
ID 3 1600 1300
ID 4 2000 1900
CP 2100 1800
If the above changes were accepted (without deducting the 2 hours required for confirmation or any additional requirement shippers may have on their end users to confirm their renominations this change may effectively provide) an additional usable cycle i.e. the ID2 cycle.

Compression of the confirmation process

An additional enhancement to the nomination process is proposed, which is the reduction of the existing 2 hour confirmation and approval process period. MDL had raised this before when attempting to address the limitation of the timing of the nomination process. Similarly compression of any additional notification period shippers place on the end users should be encouraged.
We believe the above options should be explored, discussed with pipeline TSO.s, shippers and users alike with some iteration being adopted.

Tolerances

While on principle it is recognised that the existing tolerances at welded points are too large and allow for the cost of balancing actions to be socialised rather than recovered we believe that while change is necessary it needs to be made progressively. We believe that monitoring of balancing performance should take place to assess the effects of any implemented changes with the changes taking place in a staged manner if practicable.

Participation in Balancing Actions

New Zealand Steel believes that all end users capable of taking part in transactions with a balancing agent should be allowed to do so.