



New Zealand Steel Submission on the Statement of Proposal - amendments to the Gas Governance(Critical Contingency Management) Regulations 2008

**New Zealand Steel Limited
24 December 2012**

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 (NZS) wishes to make a submission to the Gas Industry Company Limited (GIC) on the Statement of Proposal - amendments to the Gas Governance(Critical Contingency Management) Regulations 2008

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, for influencing the ironmaking chemical process if required, and process stability.

NZ Steel, as an industrial end user of gas, had considered applying for Minimal Load Consumer status when first approached following the change in regulations from the Natural Gas Outage and Contingency Plan (NGCOP) to the Critical Contingency Management (CCM) regulations in 2009. NZS reviewed its position relative to the requirements and developed a theoretical shutdown profile for the natural gas supply to site. Given the wide range of applications and processes where gas is used, coupled with the varying production status of each of its facilities, NZS decided to not apply for Minimal Load Consumer (MLC) status as it could not readily comply with shutting down safely in strict accordance with a theoretical gas shutdown profile. NZS decided that it would shut down as quickly as it safely could in any such event as provided for under schedule 55 in the Gas Governance Regulations (GGR) 2008.

NZS demonstrated that it could shut down effectively as a responsible participant as was the case in the 2011 Maui gas outage whereby, from time of notification, 30% of use was shut within 40 min , and 88% of use was shut off after 1 hour.

Submission:

New Zealand Steel has reviewed the Statement of Proposal and associated documentation, and agrees with its general intent which we interpret as to preserve the linepack in a critical event until gas supply is restored as best as is reasonably practicable.

We disagree, however, with some of the recommendations proposed and / or omissions which we considered may be lacking in order to comprehensively cover the intent of the SoP. These are outlined in our submission below

Importance of Natural Gas Supply and Transmission

NZS makes a substantial economic contribution to the local and national economy . An uninterrupted supply of Natural Gas to NZS is important to our industrial processes and efficient operations.

There is risk around Natural Gas supplies in NZ given the seismic risk, distance of most gas reserves from users and reliance largely on a single pipeline. The ability to quickly and efficiently undertake repairs or other remedial action, is crucial to the NZ economy.

While it is appropriate to consider the use of alternative fuels for industry, this must be done in the context of what is economically practical in dual fueling of plant, and what is realistic in ensuring ready access to these alternative fuels in times of supply stress.

While NZS commends GIC for reviewing Critical Contingency Management, it is also important GIC takes all reasonable steps to ensure the pipeline owners and operators are fully prepared and resourced to quickly deal with any supply issues that may arise. This work is important and is still outstanding from the MBIE review of the October 2011 Maui outage. The next best to no interruption to gas supply, is speedy restoration. Prescriptive CCM planning is only required for when these measures have been ineffective. Please ensure adequate attention is given to keeping the fence at the top of the cliff in good order. That way the CCM ambulance at the bottom of the cliff need only be a precaution.

Not endangering life or safety

On page 8 of the Executive Summary of the SoP there is a section entitled “Not endangering health or safety”.

As stated in the background statement of this submission, NZ Steel states that following a review it deliberately decided against applying for MLC due to concerns it had about shutting down its numerous facilities which use gas in a safe manner and strictly in accordance with the timetable it would have needed to submit as part of being an MLC. Subsequently whilst a lot of importance is placed on MLC status in the SoP, NZS considers it not practicable for a large industry with many differing gas facilities and uses (Large Gas User with Multiple Uses -LGUMU) within its confines should there be an associated risk in complying with such a schedule. It could be argued that the shutdown schedule may need to make more allowance and be more generous in the time requested for shutdown by an MLC. NZS, however, considers such a suggestion to be in opposition to the intent in the SOP as the shutdown schedule should be as short as practicable irrespective of the various permutations involved in a site's curtailment of its natural gas demand .

Hence, NZS considers it is appropriate to first examine the process of shutting down as provided for within the regulations for such an industry prior to deeming what is an appropriate and efficient regulation.

A distinction needs to be made when defining what a large user actually is, as not all large users of natural gas are equal in as much that LGUMU have many differing gas facilities and uses. The reason to make this distinction is that in general terms the level of risk associated with gas shutdown / demand curtailment is significantly lower when there are few facilities and similar uses within a site's confines. E.g. Using a large volume of gas in a CCGT has less inherent safety risk for shut down than for a 42 MW submerged arc iron smelter

The SoP nor its associated reports from either the CCO nor Concept Consulting specifically addresses the significant issue for shut down for the large user.

Regulation 55 (1) of the regulations, detailed below, only begin to address this

55 Retailers and large consumers must follow directions

(1) Retailers and large consumers must, as soon as is reasonably practicable, comply with the directions of a transmission system owner given under these regulations during a critical contingency.

For instance the CCO may have concerns that this does not stipulate a prescriptive curtailment schedule for the large user who chooses to operate under this regulation. In practical terms when faced with shutting down a LGUMU, there is no difference to the shutdown procedure whether it is designated an MLC or not. The practical issue is about the status of the various facilities using gas across the site and whether a particular shutdown schedule can be implemented and all associated steps be incorporated without taking additional contingency measures to reduce HSE and plant integrity risk. The only real difference is one of a regulatory perspective which allows on grounds to avoid serious damage to plant or to mitigate serious environmental damage.

Safe shutdown for such plants is complicated by the production sequence at any point of time and should not be fettered by a prescribed shutdown timetable. There is inherent risk in asking personnel to rush shutdowns. Whilst NZS understand providing information to the CCO is essential for efficient CCM during a Critical Event (CE), NZS does not consider it a significant problem to overcome. This can be resolved simply by making a provision in the CCR such that any user in band1 - 3 must provide a shut down schedule which includes the potential variability to the CCO irrespective of its MLC status.

Rate of Shutdown, Risk Analysis, and Contingency Measures

Determining the associated risk of problems, and potential problems, encountered during shutdown is important for determining rates of shutdown. Safety issues in shutting down large furnaces can ultimately lead, at worst, to extensive refractory failure resulting in refractory wrecking and rebuilding. Not only does this cost in the order of magnitude of \$25M per Melter at NZ Steel but it exposes personnel to safety risks in implementing such repairs which normally occur at 15 – 20 year intervals and involve rigorous and extensive planning which includes safety risk mitigation. Given the short length of time associated with the decision making processes required during a CE, providing for all risks in the same manner as would be provided for the planned shut whilst ideal, may not always be possible. In the context of the recommendation of Concept Consulting, Review of Gas Critical Contingency Management: Post Maui Pipeline Outage

“Whether the current designation system creates perverse incentives for consumers to under-invest in back-up energy sources to control risk that they are better placed to manage; “

one needs to consider how such a disastrous result could be prevented. To do this one needs to understand the operational constraints. We consider it a worthy exercise to walk through such an example to better illustrate these and how it influences our opinion of what is truly required for a LGUMU.

A Melter at NZS can be maintained for a short period of time (< 1 day) without feed material by providing residual power to the Melter. However, without providing feed nor removing products such as slag and iron after a few days the internal refractory will be damaged by internal blockages resulting in extensive repairs cost of multi-million dollars. If the Melter can be fed then the situation can be avoided. To do so only a small residual amount of gas is required to 1) heat the launders for Melter tapping to occur without the risk of iron/steam explosions occurring, and 2) operate a pilot flare to ignite combustible waste gas flared at a flare stack as downstream facilities would not be able to take this waste gas as their operation is contingent on the supply of gas.

This requires either retaining a residual amount of gas from the supply network which is entirely dependent on the scale of the curtailment managed by the CCO, or by employing a contingency measure viz. fuel switching. The latter measure requires LPG to be supplied via a contingency step of acquiring an LPG tanker and supplying the Melter via gas vaporisers which need to be acquired prior to

modifying and connecting to the network. Whilst this is possible and would satisfy the intent of investing to control the risk as detailed as a recommendation by Concept Consulting, however, it is entirely contingent on the availability of LPG. During the Maui Outage 2011 it became immediately apparent to NZS personnel exploring the possibility of utilising LPG that suppliers were grossly short stocked . Given the scale of activities in large industry which could possibly require fuel switching to either prevent damage , reduce safety risk, or continue economic production, NZS consider there is a requirement to fully understand the viability of provisions for fuel switching during a CE. NZS consider that whilst normal commercial arrangements are in place for fuels which otherwise would not be used unless a CE occurs, there is a need to develop an emergency plan for such fuels. This could if appropriate have similarities to the International Energy Agreement Act for emergency reserves held for transport fuels albeit on a national level.

To summarise the above, should a facility need to be shutdown without incurring any additional safety risks to personnel and require alternate fuels, then NZS considers an emergency supply plan is necessary. NZS consider some of the main themes in the development for such a plan to include

1. Volume of alternate fuel(s) required to adequately provide for those most at risk in descending order of priority
2. An emergency plan for supply which would supersede normal commercial arrangements should an emergency reserve be impracticable to secure for such an event.

Whilst the above discussion has been primarily addressing the process of curtailment as outlined in the CCR by either an MLC status or by regulation 55(1) would be appreciated that the logical consequence may be the need for continued supply of a small amount of natural gas should the safety risks not be mitigated including by the supply by alternate fuel (s) .

Continued Use of Gas after being instructed to curtail

Consequently regulation 47 which is discussed in the SoP needs to be addressed

The following excerpts either within or referred to by the SoP address the topic of “Not endangering life or safety”

Extract from 5.11 Minimal Load Consumers

“Further, it appears that some consumers without designation as either ESP or MLC may have continued to take a reduced level of gas supply for a period following the direction to curtail, in order to avoid damage to plant. In other words they operated as if they had either an ESP or an MLC designation.”

Extract from 5.13 Recommendations

It is recommended that:

1. *The existing Regulation 47 is reviewed with the aim of ensuring that it is used to deal with health and safety risks only under exceptional circumstances, while maintaining incentives on consumers to consider and manage health and safety risks more generally;*

Whilst effort may be made by investing in contingency planning and plant modifications to reduce risk, some risks may not be able to be adequately covered and a small amount of natural gas may be required. The subject of prioritizing the gas to the industry with the greatest need must be addressed. There is considerable discussion in the SoP as to how this should be allocated. NZS considers the overriding factor to be that of safety, followed by damage to plant, followed by economic activity.

At NZS there is a total of 5 areas where fuel switching would be considered one of which was developed and operated during the Maui CE.

Including the example of the Melter, used for illustrative purposes, there are 3 main areas in Ironmaking , 2 of which cannot be easily retrofitted for alternate fuel switching, and which are vulnerable to refractories failure during a CE without the supply of gas . This could expose personnel to risk when attempting to affect a repair in an emergency situation. There are 2 other areas at

NZ Steel where fuel is required, one to prevent damage to the galvanizing pot on the Hollow Sections which would necessitate a highly risky removal of a roof and a very large crane to remove the pot. The second is to keep operations performing in the Metal Coating Plant.

As discussed above the main issue is about availability of LPG. If it is not available then a residual amount of gas should be supplied to avoid personnel risk to effect repairs on those facility which would be damaged with the loss of gas.

Communications during a critical contingency

Verbal communication of curtailment or emergency events remains NZ Steel's preference, with supporting documentation to follow by email.

Whilst appreciating the CCO's requirement for information, direct communication with one body is preferable, The NZS person responsible for curtailment has limitations on their availability due to the numerous tasks and expediency required to execute those tasks during curtailment for a CE.

Early notification of a contingency being declared is important to early curtailment. In October there was a 20 minute delay.

Regular communication until the fault has been found and a reliable estimate of repair time established, is very important for planning, particularly if stand-down of a large workforce may be involved. Knowing the status, even if there is no new information, is an important part of the communication process.

Gas availability

It is understood if there is no gas all activity will come to a halt, however a small volume of gas can make a large difference for LGUMU sites:

- Safety and plant Integrity issues as outlined above.
- For NZ Steel reducing to around 5% of normal supply within 2 hours means HSE and plant integrity issues can be managed, and the economic cost of total shutdown avoided.
- The Concept Consulting paper outlines the higher value-add is with smaller uses of gas not larger. A 95% curtailment puts NZ Steel in a small user category with higher economic returns for the Company and NZ.
- Large users able to significantly reduce consumption should be considered for inclusion in a higher band.

Questions

Q1: Are there any other matters that should be addressed when considering proposals to amend the CCM Regulations?

Regulation 47, and 55 were not raised as a recommendation by the Concept Review.

Q2: Do you agree with the Gas Industry Co proposal to combine bands 2 and 3? If not, please provide your reasons.

The reasoning is logical in terms of the capacity of band 2 i.e. users whom have the ability for fuel switching. On principle, however, there is the notional difference of those who can and who cannot easily fuel switch. The ability to switch fuel is only real if availability of alternative fuels is assured.

Q3: Do you consider that the option of trading gas usage 'rights' during a critical contingency is worth exploring? Please explain your reasoning.

Yes, worth considering, if other avenues for making available small quantities of gas cannot be found. Practicalities would be an issue.

Q4: Do you agree that regulation 53(1)(d)(ii) and 53(2) provide the necessary flexibility for the CCO to respond to changing circumstances?

Yes, but with accountability for decisions.

Q5: Do you have any comments on the analysis of ESP consumers?

Agree all ESP entities should be scrutinised as to what is essential use, not just normal operations.

Q6: Are the proposed categories appropriate? Are there any additional categories that you think should be included? If so, please provide your justification.

Q7: Do you agree with the ESP options evaluation set out in the SOP? If not, please explain why.

Agree all ESP entities should be scrutinised as to what is essential use, not just normal operations.

Q8: Are there any other criteria for MLC designation that you feel would be appropriate? Please include your justification for any that you consider should be added.

Refer commentary above re appropriateness of MLC for Large users with multiple uses.

Recognition should be given to the high economic value that can be placed on continuation of a small on-going supply of gas. NZIER analysis is quoted as a generalisation that large gas users have low value add per G_j, while relatively low consumption volumes correspond with high value add. It is contended that large sites with multiple uses, also achieve high value add for few G_j than can be supplied in CCM situation.

Q9: Would you delete any of the proposed categories?

Q10: Should electricity generators be eligible for MLC status, as described in the first option above? Or should there be a separate category, as described in the second option?

NZS has onsite co-generation facilities providing on average 60% of electricity requirements. These plants are fuelled by waste process off-gases and heat. A small amount of natural gas is required to safely operate these facilities. Given the fact that electricity supply can be compromised at times of restrictions on gas supply, it makes sense to allow for usage of small volumes of gas for such purposes.

Q11: Do you agree with the above evaluation of options? If not, please explain why.
refer commentary above

Q12: Do you agree with the above evaluation of options? If not, please give your reasons.

refer to commentary above

Q13: Do you agree with the 9-month timeframe for transitioning to the new ESP and MLC arrangements?

If a MLC designation is required for NZS, 9 months should be adequate for high-level assessments. However, a significant amount of process engineering and technical evaluation work may be required to meet the rigour of the designating entity. If this is the case 9 months will not give sufficient time.

Q14: Do you agree with the tight provisions for designations during a critical contingency

Yes, but recognising the need to minimise safety risks, equipment damage, and financial impact as outlined elsewhere in this submission.

Q15: Do you agree that the communications framework outlined above is the minimum that should be provided for in terms of public communications during a contingency event? If not, please give your reasons.

Refer to commentary above

Q16: Have we correctly identified the parties that should provide communications and the information that each should provide?

Q17: Do you agree that contingency imbalances should only apply in the case of non-regional contingencies? If not, what rationale would you provide for applying contingency imbalances to all critical contingencies (given that the Vector Transmission Code already provides for shipper mismatch)?

Q18: Do you agree that a set of guidelines would be the most efficient way to identify regional contingencies?

Q19: Do you agree that the CCO is the best party to determine regional/non-regional status of a critical contingency? If not, who would have better information on which to base a determination?

Q20: Do you agree that the CCO's role should allow direction of system reconfiguration, as outlined above? Is it important that the CCO only make such a direction where it is supported

Q21: Do you agree with this analysis? If not, please state why.

Q22: Do you agree that the CCO is best placed to write the performance report after a critical contingency? If not, who would be better placed?

Q23: Do you agree with the modifications to the performance report provisions outlined above? If not, please identify those you do not agree with and explain why

Q24: Do you agree that the CCO should collect and publish information on scheduled outages as outlined above? If not, please explain why.

Q25: Do you agree that if the CCO requires more granular data, the most efficient source would be the allocation agent? If not, what other means would you suggest, and why?

Q26: Do you have any comment on the need to ensure that Gas Industry Co is always able to appoint a party as the CCO and the need to ensure that the CCO always has access to the information and data required to fulfil the role?

Q27: Gas Industry Co proposes annual notifications to customers as a means of encouraging customers to make appropriate arrangements to cope with a critical contingency. Do you agree with this frequency and if not, why not?

Q28: Given that the seriousness of a situation that requires curtailment of Band 6, do you agree with the proposal to use text messaging to contact Band 6 customers urgently? If not, how would you propose to notify these customers in a manner that

ensures they understand the need to curtail their gas use?

Q29: While we are sympathetic to retailers' concerns about contacting large numbers of customers, there appears to be merit in placing a 'best endeavours' obligation on retailers to contact at least their largest customers in Band 6 regarding curtailment progress. Please provide your views on this issue.

Q30: Please provide your views on the proposals outlined above for retailer curtailment plans.

Q31: Do you agree that retailers are best placed to assist their customers in applying for ESP or MLC status?

Q32: Do you agree with the changes proposed to improve compliance with the CCM Regulations?

Q33: Do you agree that using data from the allocation agent is the most expedient way of checking compliance with curtailment directions by ToU-metered customers? If not, what alternative would you suggest, and why?

Q34: Do you agree with this proposal? If not, please give your reasons.