# Statement of Proposal - amendments to the Gas Governance (Critical Contingency Management) Regulations 2008

**Date issued: 12 November 2012**
**Submissions close: 24 December 2012**

GAS INDUSTRY COMPANY LIMITED

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## About Gas Industry Co.

Gas Industry Co is the gas industry body and co-regulator under the Gas Act. Its role is to:

- develop arrangements, including regulations where appropriate, which improve:
  - the operation of gas markets;
  - access to infrastructure; and
  - consumer outcomes;
- develop these arrangements with the principal objective to ensure that gas is delivered to existing and new customers in a safe, efficient, reliable, fair and environmentally sustainable manner; and
- oversee compliance with, and review such arrangements.

Gas Industry Co is required to have regard to the Government's policy objectives for the gas sector, and to report on the achievement of those objectives and on the state of the New Zealand gas industry.

Gas Industry Co's corporate strategy is to 'optimise the contribution of gas to New Zealand'.

## Authorship

This paper was prepared by the Market Operations Group

**Submissions close:** 24 December 2012

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# Executive summary

This Statement of Proposal ('SoP') is aimed at making improvements to the Gas Governance (Critical Contingency Management) Regulations 2008 ('CCM Regulations'). Primarily, it is intended to capture the lessons from the October 2011 critical contingency, including the recommendations from the Critical Contingency Operator's 'Critical Contingency Performance Report' (CCO Performance Report) of 21 December 2011[1], Concept Consulting Group's 'Review of Gas Critical Contingency Management: Post Maui Pipeline Outage' (Concept Review)[2], and submissions from stakeholders on the latter. The proposals in the SoP, as amended after considering feedback from submitters, will form the basis of a recommendation to the Minister of Energy and Resources (Minister) that the CCM Regulations be amended.

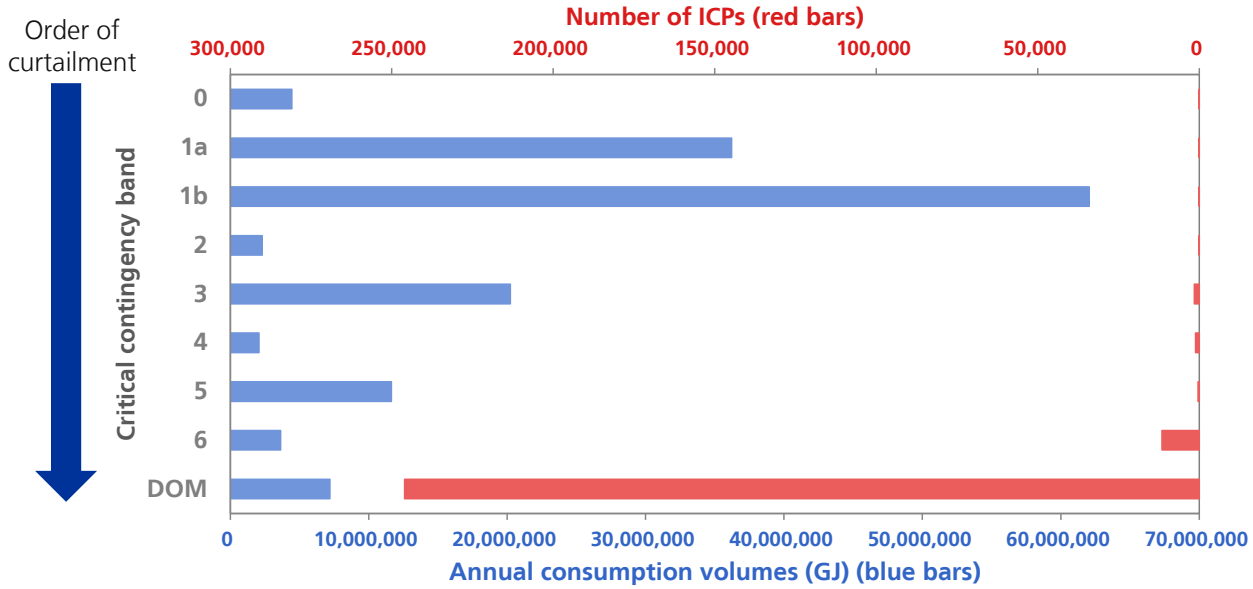
## Background

A six-day gas outage, precipitated by a leak in the Maui pipeline, caused significant disruption to gas users north and east of Taranaki in October 2011. Whenever there is a reduction in, or total loss of, gas supply to the transmission system, it is imperative that the system be managed so as to avoid pressures in the downstream distribution networks falling to unsafe levels. Failure to do so will put those networks out of commission for many months. As a result, the key tool for managing such events, called critical contingencies, is to direct end users to stop using gas (curtail) so as to stabilise the system (i.e., balance injections and offtakes). This maximises the chances that the system can revert to full operation as soon as repairs are effected. Accordingly, while curtailment can be inconvenient and costly for consumers, it avoids much worse impacts.

The CCM Regulations specify the arrangements that govern gas critical contingencies. The purpose of the Regulations is *to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply*. They provide for a Critical Contingency Operator (CCO) to direct curtailment. This is done in bands ranked in order of annual consumption volume, from largest to smallest. The logic of this is depicted in the following charts. Chart 1 shows that large volumes of gas consumption can be curtailed by contacting relatively few customers, thereby minimising the time to achieve significant load reduction.

[1] The CCO website can by browsing to www.oatis.co.nz and clicking on the CCO logo. The CCO Performance Report is available under the 'Publications' menu
[2] Available from: http://gasindustry.co.nz/sites/default/files/consultations/254/ccm_review_report_-_concept.pdf.

**Chart 1 Number of gas customers and annual consumption volumes by curtailment band**



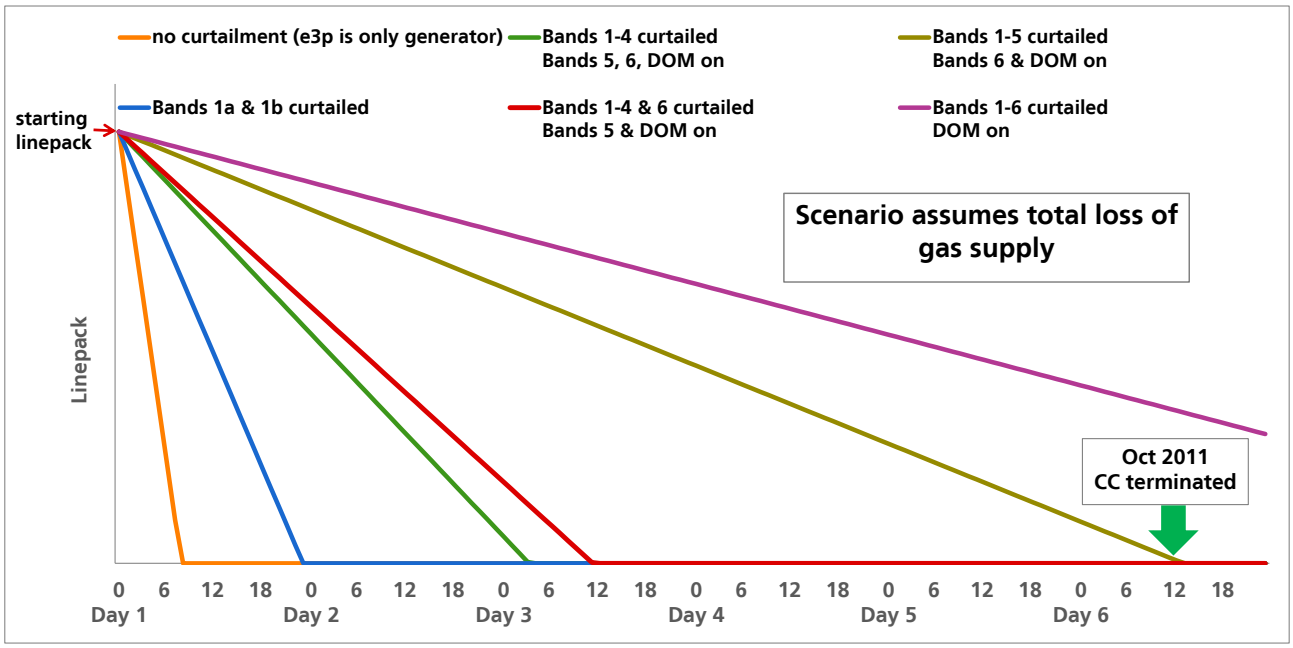

Depending on the cause of a critical contingency, it can frequently be managed by curtailing only gas users in bands 0, 1a and 1b (gas storage, electricity generation and petrochemicals manufacturing). In a more severe critical contingency, as was the case last October, gas users in other bands will also need to be curtailed.

Chart 2 illustrates how, for a given loss of gas supply, curtailing various bands extends the 'time to failure'; namely the time at which the transmission system is no longer able to maintain safe downstream pressures. The scenario depicted by this chart assumes a total loss of gas supply into both the Maui and Vector pipelines supplying gas north of Taranaki. The arrow in the chart highlights the duration of the Maui Pipeline outage in October, when the critical contingency lasted for about six and a half days.

The CCM Regulations were designed to address a range of situations that the gas market is unable to handle effectively, including failures at gas production facilities and gas transmission failures and/or restrictions. There are accordingly other gas supply outage scenarios that may be more or less severe than the one modelled here.

Chart 2 demonstrates the importance of a prompt and comprehensive approach to curtailment of gas use during a critical contingency. In the total loss scenario depicted, there would not have been sufficient line pack to maintain supplies to the parties that were given priority access during the October 2011 incident. This is a key issue that underpins a number of the proposals in this SoP. In short, the proposals are aimed at optimising chances that pressures can be maintained in the face of a wide range of scenarios.

**Chart 2 Time to failure under different curtailment scenarios**




There is general agreement that the CCM Regulations worked well during the Maui Pipeline outage and gave the CCO the necessary tools to manage the situation. Unsurprisingly, there were matters identified in the CCO Performance Report and the Concept Review that point to ways of improving the CCM Regulations. This SoP addresses those matters, presents options for resolution, and proposes a preferred option in each case.

The key matters are summarised below.

## Priority access to gas

The CCM Regulations recognise that there are instances where the requirement for certain users to curtail gas may cause disproportionate harm or social cost, and hence may justify priority access to gas during a critical contingency. At present, this is addressed in various ways as shown in the table below. However, any gas user that is given priority access is always subject to being required to curtail in full[3] and, therefore, each gas user must make its own arrangements to deal with that eventuality, irrespective of any priority designation.

[3] As occurred in October 2011 for bands zero through six.

**Table 1 Existing categories of priority access to gas**

| Category | Existing arrangements |
|---|---|
| Essential Service Provider (ESP) | The CCM Regulations recognise (at least implicitly) that curtailing certain gas users represents a potentially higher cost to society than the curtailment of other gas consumers. Gas users who provide services that are necessary to further the objectives of clause 59(4) of the Schedule of the National Civil Defence Emergency Management Plan Order 2005 (NCDEMP Order) may be classified as ESPs.<br>The CCM Regulations provide that only those activities and products that are 'necessary to further the emergency response objectives' are eligible for designation as ESPs. |
| Minimal Load Consumer (MLC) | Where a gas user requires a minimal amount of gas during a critical contingency to avoid serious damage to plant or to mitigate serious environmental damage, that user may apply to be designated as an MLC. This is an intermediate step to a full shutdown and provides for a shutdown profile that the gas user must follow when instructed to curtail. Only gas users in bands 1a through 3 (i.e., those who consume more than 10 TJ per year) are eligible to apply for MLC designation.<br>The designation is not a guarantee that the gas defined by the profile will be available. Indeed, if the CCO directs Band 4 to curtail, then MLCs must curtail in full. |
| Not endangering life or safety | Regulation 47 states that: '*No person is required to comply with a provision of this Part to the extent that compliance would unreasonably endanger the life or safety of that person or any other person.*' |

## ESP-related issues

Many customers were either unprepared or poorly prepared for a significant gas contingency last October. In addition, and despite retailers being required to inform their customers about the existence of the ESP designation and invite applications, many were unaware of the ESP designation. This resulted in a number of applications from gas users to be designated as an ESP during the October 2011 event. Certain of those related to gas users fit only a loose interpretation of the objectives of the NCDEMP Order; others sought to justify their applications based on being a supplier to an ESP.

Ideally, there would be clear arrangements ahead of time so that gas users would know that they were an ESP or not and, in either case, make arrangements appropriate to their situation to cope with a loss of gas supply[4].

Currently, there are 376 sites with an ESP designation, equating to total consumption of over 11,500 TJ/annum. As shown above in Chart 1, this level of annual consumption makes Band 5, gas customers

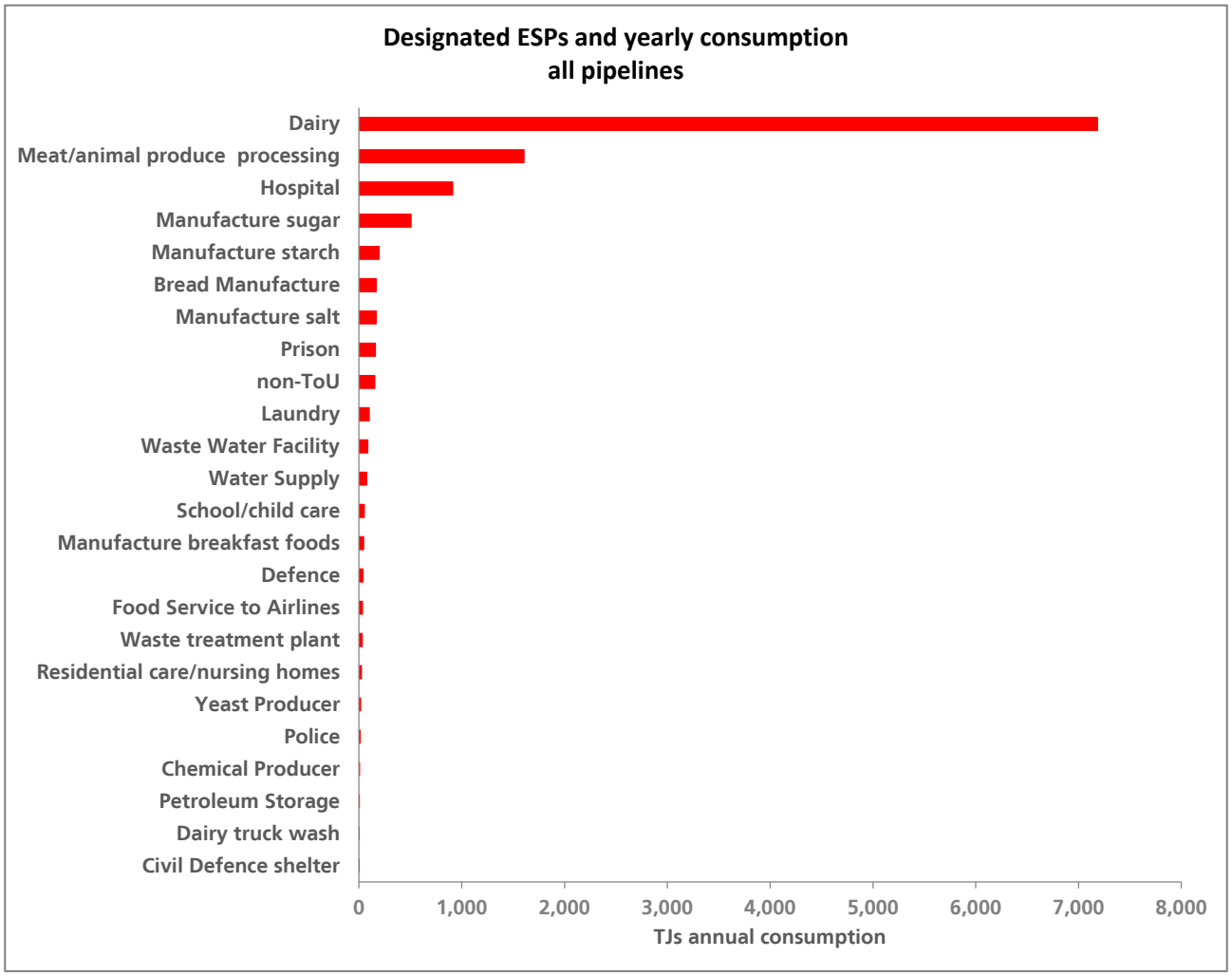
[4] If a gas user receives an ESP designation, that moves them into a higher priority curtailment band but is not a guarantee that gas will be available. Accordingly, every gas user must be prepared to curtail fully if instructed to do so by the CCO, TSO or their retailer.

with ESP designations, one of the largest curtailment bands. It is larger than the commercial customer Bands 4 and 6, larger than the combined Domestic load, and over half the size of the large industrials in Band 3. If total ESP consumption is excessively large, then the CCO will need to curtail that band sooner and in more situations than would otherwise be the case.

Chart 3 below shows the categories of the largest gas consumers with ESP designations, along with their annual gas consumption. In addition, Gas Industry Co has reviewed the list of gas users that each retailer maintains and has identified a number of issues, including:

- over 25% of gas users listed as having an ESP designation do not appear to qualify for that based on their annual consumption as indicated by their allocation group recorded in the gas registry; and
- of the remainder, a number do not appear to meet the criteria set under the CCM Regulations (or those criteria have been interpreted very widely).

**Chart 3 ESP-designated ICPs and yearly consumption**

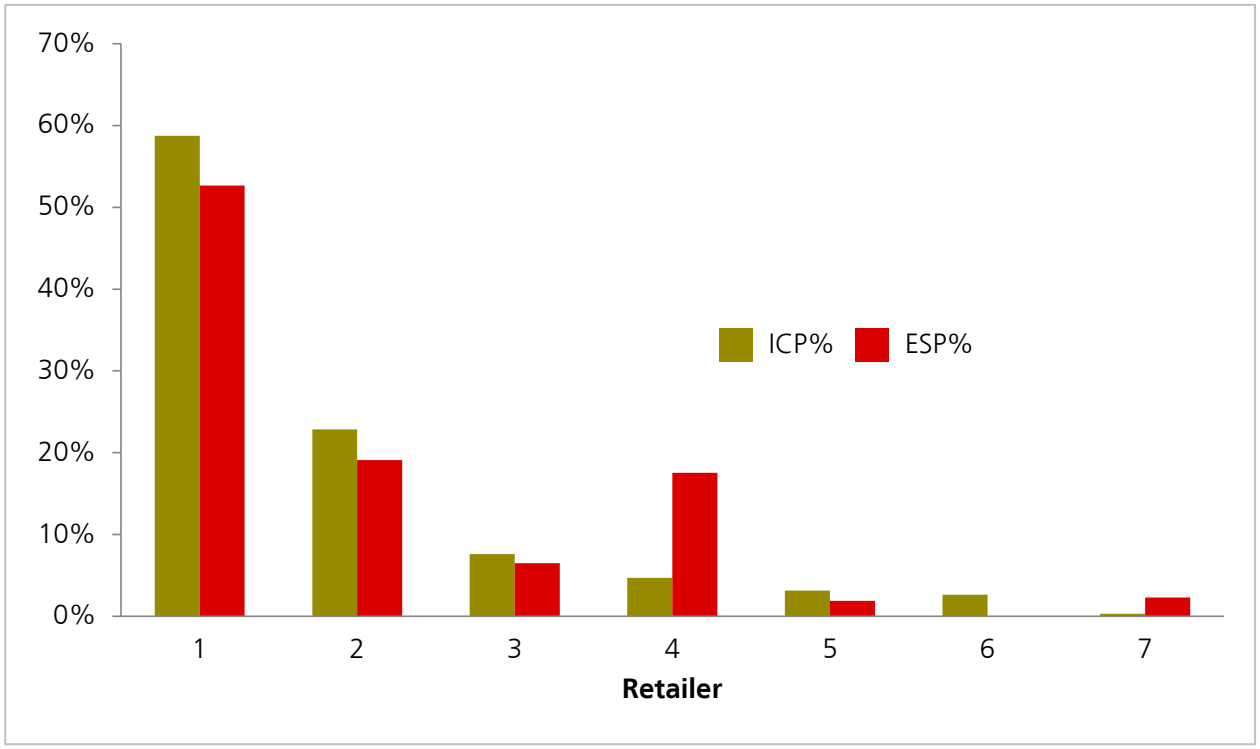



There also appear to be differences among retailers in applying the ESP designation criteria, as demonstrated in Chart 4. All else being equal, it might be reasonable to assume that a retailer's

market share of ICPs would be roughly equal to its share of ESP-designated consumers, but, as the chart shows, there are significant deviations from this pattern.

The last main issue of concern is that retailers' lists of ESPs differ from the list of ESPs held by the CCO; and both are different from the list of ICPs classified as ESPs on the registry. It is imperative that there be an authoritative source of information.

**Chart 4 ICPs vs ESPs in Allocation Groups 1-4**




The proposals in this SoP aim to resolve the matters listed above by clarifying and tightening criteria used to define the eligibility for ESP designation; clarifying that the ESP designation only applies to the part of the load that is essential; requiring retailers to periodically inform their customers about the CCM Regulations and the existence of the ESP category; and placing the responsibility for processing and determining ESP designations with the industry body (Gas Industry Co). The types of gas consumer that Gas Industry Co is proposing would qualify for ESP designation are as follows:

- critical care providers;
- mortuary services, crematoria;
- incineration of biohazards;
- water and wastewater; and
- police, fire, and other emergency services.

In addition, and as recommended in the Concept Review, it is proposed that a new Band 7 be created for critical care providers. That band would have the highest priority, i.e. be curtailed last.

Implementing the proposals would lead to a significant reduction in both the number of ESPs and the associated volumes of gas. This is justified in terms of the need to ration scarce volumes of gas in critical contingency scenarios; to give genuine priority to truly 'essential' services; and to send clear signals and incentives to other users that they need to look at other risk management options. The changes to current ESP numbers/volumes will need to be phased in over time and the proposed amendments will need to provide for transition arrangements.

Furthermore, gas users – whether or not they are ESPs – cannot assume (either currently or under the proposed changes) that there is sufficient gas during a critical contingency to continue operations and need to consider options to manage that risk appropriate to their circumstances.

### MLC-related matters

No issues were found with the existing MLC arrangements in either the CCO Performance Report or the Concept Review. However, as a result of the experience of October 2011, it may be appropriate to make some adjustments to broaden the criteria for MLC designations.

As outlined earlier, MLC designations are available to avoid serious damage to plant or to mitigate serious environmental damage, while undertaking an orderly shutdown of the plant. The Maui Pipeline outage has highlighted that there may be other situations where an MLC designation could make sense. One example is meat processors, a number of whom are currently designated as ESPs. Under revised CCM Regulations, these processors may not meet the ESP criteria. However, there could be animal welfare issues at an abattoir that was required to cease using gas, depending on when that curtailment instruction was issued. Animal welfare is not a criterion for MLC designation at the moment, but there may be merit in revising the criteria to allow such processors to be designated as MLCs. In this case, the MLC classification might allow meat processors to process animals already on site, but not to accept any further animals onto the premises until after the critical contingency is terminated. As with all critical contingency designations, MLCs would still need to be prepared to curtail gas usage fully if called to do so by the Critical Contingency Operator.

Similarly, there is a strong argument for providing small amounts of gas to assist the electricity system operator in managing the electricity system by:

- providing start-up fuel for a unit or units that have the ability to generate using coal (or another non-gas fuel) but require gas to start; and
- allowing a gas-fired unit to synchronise with the system when required to run as a synchronous condenser.

Depending on time of year and generation availability, both of those initiatives could materially assist the electricity system operator to manage the integrity of the electricity system. For the great majority of critical contingencies, such steps could be taken without adversely affecting the CCO's ability to manage the gas system.

This SoP also proposes that health and safety reasons are added as criteria for MLC designation. As with all of the designations, though, the application process will need to include an outline of

provisions that the applicant has made to cope in circumstances where there is not sufficient gas to follow the minimum load profile and shut down must occur more quickly.

### Not endangering life or safety

The Concept Review noted that there is a risk that the current provision, as drafted in regulation 47, is too broad and open-ended. This may potentially provide a wrong signal to gas users in the context of scarce gas during a critical contingency, and a weaken incentives on users to robustly manage their health and safety risks proactively ahead of any such event. As a result, there is a need to give consideration to revising the arrangement so as to ensure it is only used in exceptional circumstances. Gas Industry Co, and most submitters on the Concept Review, considered that there is merit in clarifying that regulation 47 should be interpreted within the context of the requirements of the Health and Safety in Employment Act 1992 (HSEA) to manage identifiable risks – and that being instructed to curtail gas use is an identifiable risk that needs to be mitigated as far as possible in advance.

In order to address these concerns, this SoP proposes that the existing arrangements be tightened to clarify that gas consumers are also required to meet the requirements of the HSEA to provide a safe work place. Those requirements encompass a need for foresight as to health and safety-related risks that may be associated with a loss of gas supply (whether due to a critical contingency or some other event). Accordingly, there should be a need to rely on regulation 47 only in rare and unforeseeable cases, especially in light of the change proposed above to MLC designations to allow for careful shut-down of plant where risks to human health and safety are foreseeable.

## Communications during a critical contingency

Currently the CCM Regulations provide for basic levels of communication. Specifically, the CCO is required to notify key industry participants and certain other stakeholders of both the onset and termination of a critical contingency. However, there is no requirement for either the CCO or owners of assets that may have triggered the critical contingency to provide information to affected parties or more generally. The expectation had been that the key industry participants would continue to manage broader communications as they previously had done under the voluntary NGOCP.[5]

The experience in October 2011 was that many affected parties considered they lacked information in the first couple of days of the critical contingency. This situation resulted, at least in part, from a lack of agreement as to who would provide communications about the event to stakeholders and the public, beyond those currently required in the CCM Regulations.

[5] The NGOCP or National Gas Outage Contingency Plan was the forerunner of the CCM Regulations. The NGOCP was a voluntary arrangement and, therefore, depended on all parties co-operating so as to effectively manage a contingency situation. With the transition to open access, multiple gas fields and more industry participants, universal support for the NGOCP could not be guaranteed and it was replaced by the CCM Regulations.

Effective communications is a cornerstone of contingency management. In a critical contingency, effective communications can play a crucial role in empowering gas users (and other affected parties) to make informed decisions that will lessen the impacts of the event. There is also a risk that if gas users do not receive such information (directly or via news and/or other media) then they may be less inclined, or less prepared, to follow retailer directives to curtail gas use. That, in turn, will make it harder for the CCO to manage a critical contingency event effectively.

Given the lack of clarity in the October 2011 event, and in the absence of any formal industry arrangement, Gas Industry Co has given consideration to ways of ensuring that more effective and timely communication arrangements are put in place. This SoP therefore includes an option that would make it mandatory for certain parties to provide public information. In summary:

- the owner (or owners) of any failed asset(s) would be required to provide initial information within one hour of the declaration of a critical contingency that would identify the asset that has failed, the impact of that failure, a report on progress to identify the problem, and a best estimate of the time required to resolve the problem and reinstate the asset;
- the CCO would be required to provide information on the effect of the failed asset or assets in terms of its effect on the gas system, the extent of load curtailment required, and the geographical areas affected; and
- the CCO and asset owner(s) would have requirements to provide updates at regular intervals that are broader than the current requirements to place information on the OATIS system, so as to ensure that the broad base of stakeholders has access to information for planning purposes.

Gas Industry Co would (as during the October 2011 outage) provide background information to explain the role of the various parties as well as the workings of the CCM Regulations.

## Compliance

In its Incident Report, the CCO made the following comments in relation to compliance with curtailment instructions (emphasis added).[6]

> General compliance levels by **retailers and large consumers** appeared to be very good. This is borne out by the significantly reduced demand levels observed on the system during the critical contingency.

and

> General compliance levels by **consumers** with retailer directions appeared to be very good. This is borne out by the significantly reduced demand levels observed on the system during the critical contingency.

[6] See the "Critical Contingency Incident Report" dated 4 November 2011 on the CCO section of the OATIS website – www.oatis.co.nz.

Subsequent analysis of metering data showed that there was timely response to curtailment directives. Nevertheless, that analysis has identified approximately 45 sites that continued to use gas after they were instructed to curtail.

It is important to have an efficient means to incentivise compliance and to address non-compliance by gas users in any future critical contingencies. Therefore, an offence provision is proposed to be added to the CCM Regulations.

## Other matters

There is a range of other matters that are addressed in this SoP, many of which are minor and technical in nature. The more significant matters include:

- requiring declaration of the regional status of a critical contingency as soon as possible during the event;
- applying pricing and contingency imbalance arrangements to regional critical contingencies;
- expanding and detailing the requirements for information to be supplied by transmission system owners (TSOs) to enable the CCO to discharge its obligations (so as to future-proof the CCO function should it ever become independent of a TSO);
- reviewing the arrangements for post-incident reporting and whether there is any need for auditing provisions; and
- reviewing the respective roles of retailers and the CCO.

Section 4 provides a list of the issues addressed in the SoP and proposes changes in the case of matters that are minor and/or technical.

## Next Steps

Submissions on the proposals in this SoP are invited from stakeholders and will be accepted until 24 December 2012. Your submission should be uploaded to this page on the Gas Industry Co website: http://gasindustry.co.nz/work-programme/critical-contingency-management/statement-proposal-supplementary-consultations-and-an.

Gas Industry Co will consider submissions and revise the proposals in light of the feedback received. We also intend to hold a number of workshops with stakeholders: first, to provide a forum for stakeholders to discuss the proposals in this SoP; and second, to draft the wording of the proposed, revised CCM Regulations so as to define the changes as tightly as possible.

Gas Industry Co will provide a recommendation to the Minister, including the suggested revisions to the CCM Regulations, and, subject to the Minister's approval, the recommendation will proceed to Cabinet. Following Cabinet approval, the recommendation will be forwarded to Parliamentary Counsel Office, who has the final say on the wording of the CCM Regulations.

# Contents

# Part I: Background and context for the review

# 1 Introduction and background

## 1.1 Outline of the existing regulations

The CCM Regulations were made in 2008 and came fully into force in January 2010. With a purpose of achieving '*the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply*', the CCM Regulations provide for:

- A Critical Contingency Operator ('CCO') which is tasked with determining the onset of a Critical Contingency; using the power to order and revise load curtailment directions so as to ration available gas to balance remaining supply and demand; directing restoration of load once it is safe to do so; communicating with key stakeholders throughout the incident; terminating the Critical Contingency; and reporting on the incident and the CCO's performance after the dust has settled.
- Each Transmission System Owner ('TSO') to create a Critical Contingency Management Plan that defines the processes and procedures it will follow so as to implement the CCO's curtailment and other directions. TSOs are required to pass the CCO's curtailment directions on to the retailers that use their pipelines to convey gas to customers.
- A system of classifying customers into groups defined by annual consumption – curtailment bands – so that the process of load curtailment can be efficiently managed.
- Processes for deferring curtailment for certain classes of customer that provide essential services or where providing time for an orderly shutdown of the plant would prevent or mitigate either major plant damage or environmental damage.
- A post-facto settlement among pipeline users and interconnected parties that is designed to ensure that suppliers are paid for the gas used during a critical contingency whether that gas was used by their customers or those of another retailer.

There have been three critical contingencies since the CCM Regulations came into force and it is generally acknowledged that each of the events was well-managed and that the CCM Regulations gave the CCO the tools needed to manage each of the events[7]. The most severe event occurred in the last week of October 2011 and was caused by a rupture of the Maui pipeline in north Taranaki. That

[7] See http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/gas-market/review-of-the-maui-pipeline-outage/outage-review.pdf page 4.

outage lasted 6 days and work since then has identified a number of areas in which the operation of the CCM Regulations could be improved.

## 1.2 Why are these arrangements needed?

The arrangements mandated by the CCM Regulations are quite different from the parallel situation in the electricity market. When the electricity system is under stress (i.e. there is a sudden loss of generating or transmission capacity), market emergency plans are implemented by the System Operator. Automatic mechanisms open circuit breakers at pre-determined locations and shed load (automatic under-frequency load shedding). With electricity, it is possible to cut supply to a zone (for a period) and restore it quite safely. However, the nature of the gas supply system means that there is no safe way to provide the functional equivalent to a 'circuit breaker' in gas to shed load.

### Safe pressures must be maintained in downstream networks

Because natural gas is compressible, reducing or stopping the flow of gas into a transmission system or distribution network does not immediately stop gas flowing to delivery points or customer premises. The remaining gas pressure in the transmission and distribution systems will cause the gas to keep flowing, at least until the pressure is no longer sufficient to maintain the flow. Two things happen when gas pressures fall to such a low level that the gas stops flowing: pilot lights get extinguished, and air potentially can get into the pipes. If that is allowed to happen then, before any affected network can be recommissioned, it will be necessary for:

- gas-fitters to visit each affected supply point on the network and turn off the main valve;
- the network owner to completely purge and re-pressurise the network (or affected parts); and
- gas-fitters to attend to each gas installation (i.e. supply point) to test for soundness, purge the installation of air, relight pilot lights (if any), and certify that the installation is safe for use.

Although large loads connected directly to transmission systems could be restored quickly, it is estimated that recovering a distribution network serving a large urban area could take many months. Thus, one of the most important functions of the CCM Regulations is to ensure that sufficient pressure is maintained in those downstream networks.

### Curtailing load is key to success

The key mechanism that the CCO has to manage a critical contingency is the ability to direct customers to stop (or in some instances reduce) their use of gas. The CCO will direct more and more customers to curtail gas use until the gas system is stabilised, i.e. the deliveries of gas into the affected parts of the transmission system closely match the offtakes. This is particularly true in situations where there is a problem affecting a gas production station, so that gas supply to affected networks is diminished but not stopped. Once the gas transmission system is stabilised, then it is normally just a matter of time until the precipitating problem is repaired and full supply can be resumed.

The problem of maintaining pressure becomes more acute in circumstances where a pipeline is broken and the network(s) downstream are isolated from any other source of supply. In that case, the only

way to maintain pressure is to carefully eke out the remaining linepack in the isolated part of the system until supply can be restored.

### How is the order of curtailment determined?

To be able to have the best chance of stabilising the transmission system, i.e. balancing injections and offtakes, the CCO needs to be able to effect curtailment in an efficient manner.

Consumers must be instructed to cease using gas and must then turn off their gas-consuming equipment. Because the transmission system continues to lose pressure as long as there is more demand than supply, it is paramount that these customer curtailments happen rapidly.

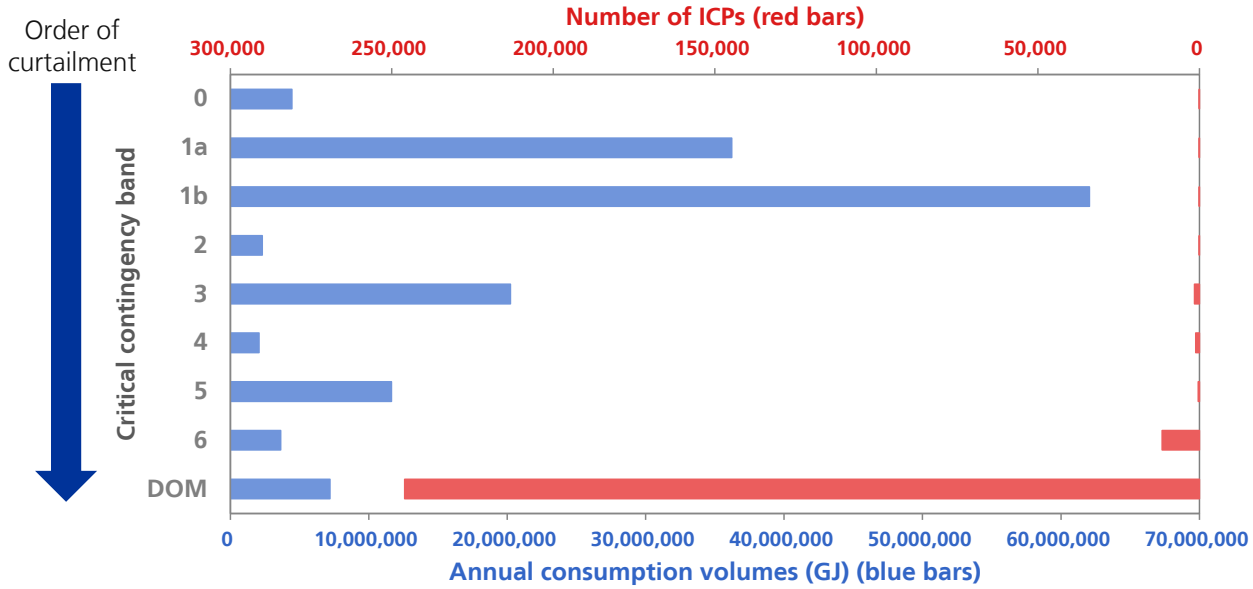
It is reasonable to ask whether the curtailment order should be based on the value of gas to each consumer. Ideally, it would make sense to curtail customers in order from those who value gas least to those who value it most. However, constructing such a list (and then maintaining it) would be prohibitively expensive and intrusive, as it would require detailed information on the economics of each and every gas consumer. There is another practical barrier to such an approach: the value of gas to gas consumers would not be static; rather, the value would depend on such changeable factors as the price of electricity, the time of day, the time of year, the weather, and the specifics of individual plants' production processes. For example, the price of electricity in the wholesale market changes half-hourly, and the 'spark spread' (the difference between electricity and gas prices) could see gas-fired electricity generators moving from highly valuing gas to giving it a low value, according to movements in wholesale electricity prices. Although perhaps not changing as often as half-hourly, the value of gas to other customers would change through time as well. However, the greatest obstacle to employing such an economic value list is the sheer practicality of achieving the necessary reduction in gas offtakes before pressures fall to unsafe levels.

The fastest and most efficient way to stabilise the transmission system is to direct curtailment in order of customer size, i.e. from largest to smallest. As each large consumer ceases taking gas, the rate of decline in pressure is reduced. This has the effect of extending the time to failure and, in the most severe critical contingencies where deep cuts are required, allows the time necessary to contact the larger numbers of smaller and smaller customers. This is exactly how the CCM Regulations work, with customers sorted into curtailment bands according to annual consumption. This was also the approach used under the voluntary industry arrangements that preceded the Regulations, and the Regulations were developed as best fit for the New Zealand market following a review of international practice.

Nevertheless, section 5.1 shows that there is a strong correlation between energy intensity and value added by gas consumption. This suggests the curtailment bands do reflect relative economic value to some extent.

The chart below shows the number of gas customers in each critical contingency band and the annual volume of gas that they represent.

**Chart 5 Number of gas customers and annual consumption volumes by curtailment band**




## 1.3 Context for the design of the CCM Regulations

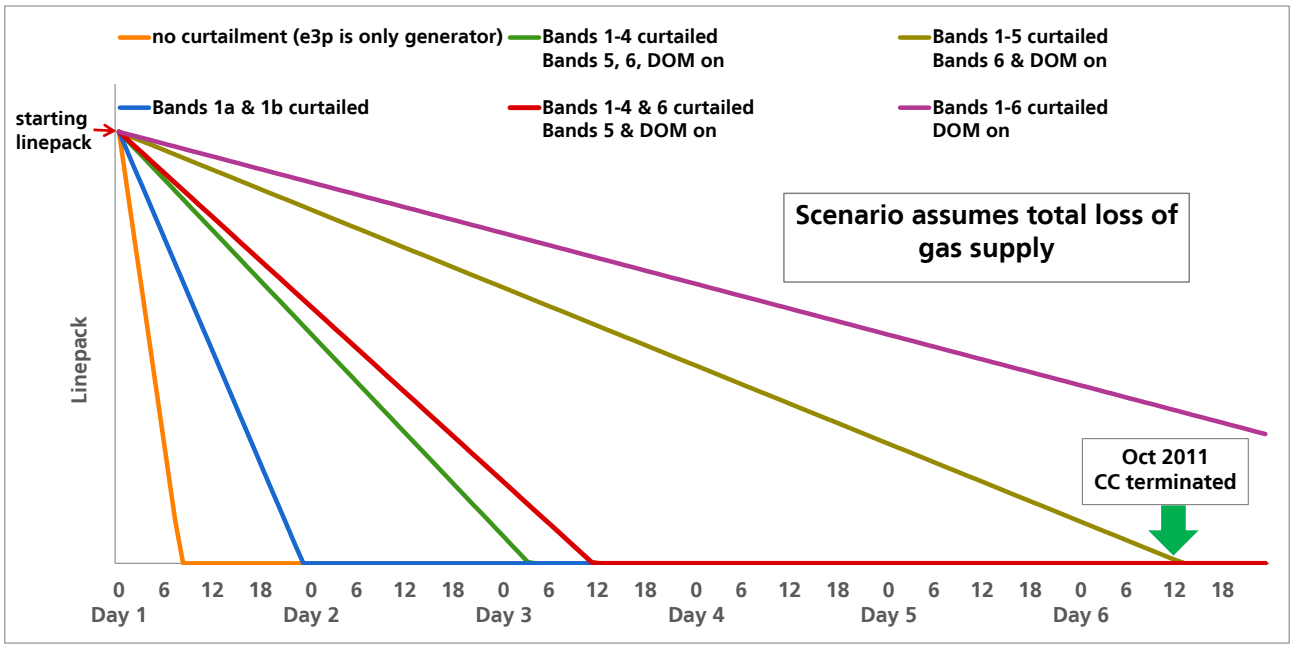
The CCM Regulations were designed to address a range of situations that the gas market is unable to handle effectively, including failures at gas production facilities and gas transmission failures and/or restrictions.

The CCM Regulations provide an administrative intervention, and for a sufficiently long time period, so the system can be stabilised to such a level that the normal market arrangements can be resumed. Note that the resumption of market arrangements may not be the normal, business-as-usual arrangements. The CCM Regulations recognise, and explicitly provide for, the ability to terminate a critical contingency event in circumstances where:

- full supplies of gas are not available; but
- the market has had sufficient time to adjust; and
- the normal arrangements can be allowed to resume with a high degree of confidence that the system will not be plunged back into another critical contingency.

An example of how the CCM Regulations can maintain pressure in the transmission system – and thus keep the distribution systems pressurised – is shown in the chart below. This chart assumes a similar event to the Maui Pipeline outage last October – except in this scenario, both the Maui and the Vector transmission pipes are out of order, so all sources of supply are cut off. The scenario assumes that there is maximum linepack available to supply consumers on the Maui, North, and Bay of Plenty pipelines north of the break. The different coloured lines each represent a different set of curtailments and show how long the linepack would last.

**Chart 6 Time to failure under different curtailment scenarios**




The scenario depicted in Chart 6 is at the more extreme end of the continuum of possible critical contingencies. But it illustrates the fact that the CCM Regulations must be able to address incidents that span the range from a moderate loss of supply (that can be addressed by curtailment of one or two bands) through to transmission failure that requires curtailment of most or all bands in the affected areas.

## Typical timeframes for critical contingencies

In general, most emergency situations are of limited duration. For example, equipment failure at a gas production station is normally able to be fixed within a day, while history has shown that pipeline operators have been able to effect repairs to damaged pipelines within a week or so.

This does not mean that it is not possible for there to be sustained outages of longer durations. The Longford disaster in Victoria lasted for 19 days, and it took six months to recover to normal production levels after the explosion at Apache Energy's Varanus Island production plant in Western Australia.

The CCM Regulations have been designed primarily to address relatively short-term outages with durations from hours to 1-2 weeks and it is important to keep that in mind when evaluating the proposed amendments in this Statement of Proposal. The CCM Regulations give specific precedence to the Civil Defence Emergency Management Act 2002 (CDEMA) by providing that a person is not required to comply with the CCM Regulations where doing so would prevent compliance with the CDEMA. In other words, it is envisaged that a particularly severe gas outage, perhaps one experienced in concert with other infrastructure failures resulting from a natural disaster, would require the centralised management afforded by the CDEMA.

### How would longer term outages be managed?

In the event that a critical contingency were to last significantly longer than, say, two weeks, then there are other options that can apply. It is possible, under the CCM Regulations, for the CCO to terminate a critical contingency even if the system is not capable of supplying the full load that would normally exist. Such a situation could prevail if commercial arrangements had been made to keep certain load off the system whilst allowing other loads to be (partially or fully) restored.

### CCM Regulations must cope with a wide range of events

The CCM Regulations must allow the CCO to manage a wide spectrum of critical contingencies from events involving a partial loss of gas supply through to events involving a complete loss of gas supply to one or more regions. Curtailments are used to optimise the chance that minimum pressures are maintained, so that the system can be restored as soon as possible following repairs.

That means any priority access given to gas during a CCM event, such as ESP designations, must be kept to an absolute minimum and cannot be regarded as firm entitlements. During a critical contingency the CCO is required to stabilise system pressures, and, as shown in the chart above, the CCO is empowered to curtail as many bands as necessary to achieve this (regulation 53). This means that all gas consumers, even those designated as ESPs, need to be aware that they may be required to stop using gas completely if directed to do so by their retailer (when directed by the CCO).

## 1.4 Structure of this document

**Section 2** describes the legislative framework and the requirements that Gas Industry Co must meet before recommending changes to the CCM Regulations.

**Section 3** outlines the evaluation criteria that will be used to assess the reasonably practicable options.

**Section 4** identifies the matters that the SoP addresses. There are four key sources of input into this document: the CCO Performance Repor'[8]; the Concept Review (which incorporated feedback from stakeholder interviews); submissions on the Concept Review; and a collection of issues gathered by Gas Industry Co (either identified internally or by stakeholders).

**Section 5** is a high-level review of the curtailment bands. First, it considers the existing band structure from the perspective of the alignment between the practical underpinning of an effective curtailment framework and the relative economics of the various bands. Secondly, it considers a revision of the lower priority bands, including combining the existing bands 2 and 3 into a single band.

[8] Available on the CCO website: go to https://www.oatis.co.nz/, select Critical Contingency Operator button, then Publications, then *111222 Critical Contingency Performance Report* under the heading 'CCO Performance Reports'. Note that the website operates best with Internet Explorer.

**Section 6** focusses on those bands and designations dealing with priority access to gas. In particular, the section addresses improvements in the criteria and approval processes for essential service providers and minimum load consumers.

**Section 7** is concerned with reviewing the approach to communications under the CCM Regulations.

**Section 8** is concerned with the critical contingency imbalance arrangements and the definition of 'regional critical contingencies' for which the imbalance arrangements do not apply.

**Sections 9 and 10** address changes in the roles of the CCO and retailers respectively. For the most part these amendments are a consequence of changes identified in the earlier sections.

**Section 11** proposes changes to the compliance arrangements that would see an offence provision inserted into the CCM Regulations to address situations where a gas user who is not also an 'industry participant' (as defined in the Gas Act) does not comply with a curtailment direction.

# 2 Legislative framework and requirements

## 2.1 The Gas Act and the GPS

Section 43F(2)(a) of the Gas Act 1992 (Gas Act) contemplates the Government making regulations and rules in relation to wholesale markets, and in particular:

> …providing for the establishment and operation of wholesale markets for gas, including for-
> … arrangements relating to outages and other security of supply contingencies.

The Government Policy Statement on Gas Governance (GPS), at clause 9, states that the Government's overall policy objective for the gas industry is:

> To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable, and environmentally sustainable manner.

The GPS also states in clause 11(e) that, consistent with this overall objective, the Government is seeking a number of outcomes, including:

> …risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties.

And, in clause 13, there is a specific outcome sought in respect of critical gas contingencies:

> Sound arrangements for the management of critical gas contingencies.

This review of gas critical contingency arrangements is consistent with the outcomes specified in the GPS. Having a robust set of processes in place to appropriately deal with risks relating to the security of gas supply (including transport arrangements) is an essential part of optimising the security of supply of gas and the overall efficiency of the gas sector (including the supply to large and small end-users).

## 2.2 Regulatory objective

Gas Industry Co's normal approach to developing governance arrangements under the Gas Act requires the development of a regulatory objective as part of the process. In this case a regulatory objective already exists, in the form of the 'Purpose' statement at regulation 3:

> The purpose of these regulations is to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply.

The first part of the purpose statement is self-evident. The second part was included because of the risk that ineffective short-term arrangements could lead to unintended consequences and problems with longer-term security of supply.

Gas Industry Co is not proposing to alter the purpose statement but will use it in formulating evaluation criteria for assessing options for amending the CCM Regulations.

## 2.3 Legal requirements when recommending regulations

Section 43F(2)(a)(vi) of the Gas Act contemplates rules or regulations being made in respect of *'arrangements relating to outages and other security of supply contingencies'*.

Therefore, regulations have already been made for gas critical contingency arrangements in compliance with the process under section 43L of the Gas Act for making a recommendation for any rules or regulations to the Minister.

That process involved:

- making an assessment of the proposed regulation or rule against any reasonably practicable alternatives taking into account: the benefits and costs, the extent to which the regulatory objective would be promoted, and any other matters considered relevant;
- preparing a statement of proposal containing specified matters and consulting with persons likely to be affected by the proposal; and
- considering submissions from those persons, before making a recommendation to the Minister.

The consultation requirements under the Gas Act (undertaken prior to Gas Industry Co recommending rules or regulations to the Minister for approval) provide an opportunity for participants in the gas industry, as well as other stakeholders, to express their views and have input on any proposed rules or regulations.

This Statement of Proposal is for the purpose of amending the existing CCM Regulations and is intended to meet the above requirements.

# 3 Evaluation criteria

As described in section 2.3, Gas Industry Co is required to identify the 'reasonably practicable options for achieving the purpose of the regulation' and then to assess those options by considering:

- the costs and benefits of each option; and
- the extent to which the objective would be promoted or achieved by each option; and
- any other matters that [Gas Industry Co] considers relevant.

To be able to assess the reasonably practicable options requires a set of criteria on which to base the assessment. Gas Industry Co is given two key sources of guidance in this respect: the Gas Act and the GPS. In addition, the purpose statement in the CCM Regulations also provides a touchstone against which to evaluate the worth of alternative approaches.

Each of these criteria will be used to evaluate the options and they are discussed below.

## 3.1 Gas Act objectives

At section 43ZN, the Gas Act lists a set of objectives for Gas Industry Co when recommending regulations under section 43F. It follows that these same objectives must be used when making a recommendation to amend existing regulations that were created under s43F. The objectives are set out below.

> The objectives of the industry body, in recommending gas governance regulations under section 43F, are as follows:
>
> (a) the principal objective is to ensure that gas is delivered to existing and new customers in a safe, efficient, and reliable manner; and
>
> (b) the other objectives are—
>
> (i) the facilitation and promotion of the ongoing supply of gas to meet New Zealand's energy needs, by providing access to essential infrastructure and competitive market arrangements:
>
> (ii) barriers to competition in the gas industry are minimised:
>
> (iii) incentives for investment in gas processing facilities, transmission, and distribution are maintained or enhanced:
>
> (iv) delivered gas costs and prices are subject to sustained downward pressure:

(v) risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties:

(vi) consistency with the Government's gas safety regime is maintained.

Although all of these objectives must be taken into account wherever relevant, the most relevant for the management of critical contingencies are items (a), (b)(v), and (b)(vi) in the list above.

## 3.2 Objectives and outcomes from the GPS

In the April 2008 GPS the Government stated that its objective for the entire gas industry is:

> To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable and environmentally sustainable manner.

The GPS makes clear that Gas Industry Co must have regard to this objective when making recommendations for rules, regulations or non-regulatory arrangements for any part of the gas industry.

In addition, the GPS seeks a number of outcomes for the gas industry and, specifically, for critical contingencies, seeks:

> Sound arrangements for the management of critical gas contingencies.

## 3.3 The regulatory objective

Taking the objectives and outcomes specified by the Gas Act and GPS, Gas Industry Co derived a purpose statement for the CCM Regulations that encapsulated what those regulations were designed to achieve. That purpose statement (regulation 3) states:

> The purpose of these regulations is to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply.

That statement encapsulates the notion that the arrangements should ensure that participants have incentives to behave appropriately during critical gas outages and should not have incentives to behave in ways that would contribute to precipitating a critical gas outage.

The second part of the purpose statement is designed to ensure that 'effective management' is not achieved at the expense of increasing the risk of depressurising downstream networks.

## 3.4 The evaluation criteria

Gas Industry Co has combined all of the objectives outlined above into a set of criteria that will be applied to evaluate and establish relative rankings for the practicable options. These criteria are as follows:

**Allocative efficiency**: implicit in the principal objective under the Gas Act.

**Dynamic efficiency**: also implicit in the principal objective prescribed by the Gas Act.

**Security of supply**: ensuring that the critical contingency arrangements provide a framework and incentives that foster optimal re-establishment of gas supplies and normal market mechanisms.

**Risk management**: given the limited tools available to manage a critical contingency, chief among which is the ability to ration gas, and the significant downside associated with an uncontrolled drop in pressure, the CCM Regulations should ensure careful risk management.

**Providing appropriate incentives for resilience**: as discussed elsewhere in this document, critical contingencies are caused by an interruption in gas supply. Gas consumers need to be aware of the risks to them of losing supply, and there should be the appropriate incentives in place so that they plan for these outages accordingly.

# 4 Matters addressed by this SoP

The tables set out in this chapter list all of the matters considered in this SoP. Where the listed matter is discussed in the body of this paper, the table contains a cross-reference to the relevant section. Where the matter is of a minor and technical nature, the proposed amendment is contained within the table itself.

## 4.1 Recommendations from the CCO

The CCO Performance Report contained a total of 19 recommendations. Of those, recommendations 14 through 19 were directed to Gas Industry Co. Those recommendations were examined in the Concept Review. Submitters expressed a range of views on those matters and Gas Industry Co reached a set of preliminary conclusions in its submissions analysis.[9]

Table 2 summarises the status of those issues, a number of which are addressed in more detail in this Statement of Proposal.

**Table 2: List of recommendations from the CCO Performance Report**

| CCO recommendation | Proposal |
|---|---|
| Gas Industry Co to lead an industry consultation process (including a representative cross section of consumers) to consider the [following] points and any other subsequently identified issues and propose and implement any required amendments the Regulations:<br>(CCO Recommendation 14) | |
| • the definitions of essential service providers contained in the Essential Services and Minimal Load Guidelines and whether a new designation of 'other essential food stuffs' in addition to the existing bread and fresh dairy produce categories is appropriate; | A revision of the Guidelines has occurred separately from this SoP.<br>However, this SoP does propose amendments to ESP and MLC criteria. See section 6. |

[9] Available from the Publications section of the CCO website – www.oatis.co.nz.

| CCO recommendation | Proposal |
|---|---|
| • 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; | See section 5. |
| • the appropriateness of basing gas contingency curtailment bands on the Schedule of the National Civil Defence Emergency Management Plan Order 2005, which may be more suited to large scale natural disaster situations rather than gas supply outages; | See section 6. |
| • the introduction of a new band or sub-band for 'Critical Care Providers' or 'Life and Limb Services' for hospitals and medical care centres; | See section 6. |
| • the treatment of support services to essential service providers e.g. laundries servicing hospitals; | See section 6. |
| • whether it would be appropriate to introduce a requirement for essential service providers to nominate a minimum gas usage value to allow their essential processes to continue to operate at their facilities; | See section 6. |
| • the appropriate classification of essential service providers with an alternative fuel availability; | See section 6. |
| • whether, and how, to add avoiding environmental risk as a criteria for placement in curtailment bands; | See section 6. |
| • whether, and how, to include seasonal variations in usage or maximum daily quantity in place of the current approach of using annual consumption; | See section 9.6. |
| • whether, and how, to increase transparency and consistency of Band 5 re-designation applications (for example, whether it would be appropriate to introduce a system of independent audit of classifications by retailers or whether it would be appropriate to freeze all designations once a critical contingency has been declared); | The other changes to the classification of ESPs (including the proposed requirement on retailers to notify their customers of ESP and MLC classification on a regular basis and moving the approval process to an independent body) make this recommendation redundant. |

| CCO recommendation | Proposal |
|---|---|
| • whether it is appropriate for essential service providers to be curtailed prior to Band 6 consumers, as currently provided by the curtailment order in Schedule 2 (2) of the Regulations; and | See section 6. |
| • whether requiring retailers to give curtailment directions to their Band 6 consumers in accordance with regulation 56 of the Regulations causes undesirable delays in notices reaching these consumers. | See section 10.2 |
| Gas Industry Co to lead an industry consultation process to consider the following and any other subsequently identified issues:<br>(CCO Recommendation 15) | |
| • if the regional status of a critical contingency should be designated when a critical contingency is declared; | See section 8 |
| • if a single entity should have the obligation to designate the regional status of the critical contingency; | See section 9.2 |
| • if the pricing and imbalance methodology could be applied to all critical contingencies hence removing the requirement to determine the regional status; and | See section 8 |
| • propose and implement any required amendments to the Regulations that result from the consultation process. | This Statement of Proposal includes all the amendments Gas Industry Co considers necessary to improve the CCM Regulations |
| We recommend that the Gas Industry Co give consideration to amending the Regulations to clarify the process for a partial restoration.<br>(CCO Recommendation 16) | See section Q2: |
| We recommend that the Gas Industry Co and MED give consideration to the most appropriate mechanism for increasing knowledge and understanding of the critical contingency system.<br>(CCO Recommendation 17) | See section 10 |

| CCO recommendation | Proposal |
|---|---|
| We recommend that the Gas Industry Co and MED give consideration to introducing greater incentives for compliance with directions under the regulations.<br>(CCO Recommendation 18) | See section 11 |
| We recommend that the Gas Industry Co and MED consider potential improvements to the review and reporting process contained in the regulations.<br>(CCO Recommendation 19) | See section 9.4 |

## 4.2 Issues raised by the Concept Review

The Concept Review included 25 recommendations in its review of the Maui Pipeline outage. Table 3 outlines those recommendations and notes where the issue is discussed in this document.

**Table 3: List of recommendations from the Concept Review**

| Concept recommendation | Proposal |
|---|---|
| **Curtailment bands** | |
| 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; | See section 6.6 |
| 2. The Regulations are amended to remove the reference in 44(3) to the Schedule of the National Civil Defence Emergency Management Plan Order 2005 and incorporate specific criteria relating to 'critical care services', 'essential food production', 'environmental protection', and 'minimum supply to avoid substantial economic costs'; | See section 6. |
| 3. The Regulations are amended to require that all designations as an ESP must specify a minimum load that is considered 'essential'. Under most circumstances this would be expected to be less than normal gas consumption; | See section 6. |

| Concept recommendation | Proposal |
|---|---|
| 4. Schedule 2 (the curtailment schedule) to the Regulations is amended to replace the current Band 5 with bands 5a (minimum supplies to avoid substantial economic costs), 5b (minimum supplies for essential food preparation and environmental protection), and Band 7 (critical care services); | See section 6. |
| 5. The existing arrangements whereby Band 6 customers are required to curtail demand is retained, rather than replaced with a requirement for a public appeal for savings; | See section 9.6. |
| 6. The Regulations are amended to either:<br>a. allow Band 6 consumers to apply for 'critical care' ESP designations;<br>b. provide for Band 6 and Band 7 to be given equal priority in terms of curtailment and restoration; or<br>c. allow Band 6 consumers to 'self-select' ESP status during a gas contingency. | See section 6. |
| **Preparing for a Critical Contingency** | |
| 7. The Regulations are amended to require consumers who wish to be designated as ESP to supply information on the essential nature of service, any back-up supply arrangements in place or the reasons why back-up supply arrangements are not feasible, the minimum supply necessary to maintain the service, and emergency arrangements for coping with full loss of supply (including emergency stores and other back-up arrangements necessary to survive a gas outage); | See section 6. |
| 8. The Regulations are amended to require consumers who wish to be designated as MLC to supply information on the rationale (e.g. probable damage to plant), the economic costs involved with loss of supply, any back-up supply arrangements in place or the reasons why back-up supply arrangements are not feasible, the minimal supply arrangements necessary to avoid damage to plant, and emergency arrangements for coping with full loss of supply (including emergency stores and other back-up arrangements necessary to survive a gas outage); | See section 6. |

| Concept recommendation | Proposal |
|---|---|
| 9. The Regulations are amended to provide an on-going obligation on retailers to notify consumers about the possibility of loss of supply and the opportunity to apply for ESP and/or MLC designation; | See section 10. |
| 10. The Regulations are amended to require all MLC and ESP designations to be approved by an independent body, following a recommendation from a retailer. Retailers would retain responsibility to interface with consumers over possible designations, assist with preparation of applications, and to make recommendations to the independent approving body; | See section 6. |
| 11. The Regulations are amended to require retailers to prepare, submit for approval by an independent approving body, and maintain a 'Gas Retailer Curtailment Plan' that identifies the consumers in each band, provides evidence that all consumers have been contacted about the possible need to curtail gas demand during a contingency, and the possibility of being designated as ESP or MLC, provides a process for maintaining the consumer lists, provides a process for contacting consumers to issue curtailment directions following the declaration of a contingency, and reporting on compliance to TSOs; | See section 10. |
| 12. Further consideration is given to whether the independent approving body should be Gas Industry Co or an independent panel established for the purpose; | See section 6 |
| 13. The Regulations are amended to clarify that each consumer installation should be separately identified and allocated to a curtailment band based on the characteristics of each installation (rather than aggregating multi-site consumers); | This has always been the case. However, Gas Industry Co proposes amending the drafting to make clear that an ESP or MLC approval relates to a 'consumer installation' as that term is defined in the CCM Regulations. This amendment is considered to be minor and technical. |
| 14. The Gas (Switching Arrangements) Rules 2008 are amended to provide for retailers to maintain the 'load shedding category'; | See section 10. |

| Concept recommendation | Proposal |
|---|---|
| 15. Further consideration is given to the need for an independent audit of the registry fields in order to assess the accuracy of the consumer curtailment designations. | Accuracy of consumer designations in the registry is important and fits within the ambit of the Gas (Switching Arrangements) Rules 2008.<br>Moving approval of ESP and MLC designations to an independent body will also require that body to advise the relevant distributor of any necessary changes to status fields in the gas registry. |
| **Critical Contingency Operations** | |
| 16. Further consideration is given to the best means to ensure that the CCO has appropriate access to consumer seasonal or daily consumption data to facilitate analysis and planning during a contingency; | See section 9.6 |
| 17. Further consideration is given to amending the Regulations to clarify that the CCO may call for public restraint and gas savings in an affected region, following consultation with Gas Industry Co, if Band 6 consumers in that region are directed to curtail gas consumption; | The CCO is well-placed to make a public appeal where it could materially extend the ability to maintain pressure within the pipeline networks. This issue is discussed in section 9.1 |
| 18. The Regulations are amended to clarify that the CCO should take responsibility for coordinating communications during a critical contingency, is required to appoint a media spokesperson as soon as reasonably practical following the declaration of a critical contingency, and is required to make timely public announcements at regular intervals during a critical contingency; | See section 7. |
| 19. Further consideration is given to whether it is necessary or desirable to amend the Regulations to provide the CCO with powers to require relevant information to be supplied by TSOs and other asset owners during a critical contingency; | The proposals regarding communications in section 7 address this in a different way by requiring asset owners or operators to provide public information regarding the assets for which they are responsible. |
| 20. The CCO Service Provider Agreement is amended to provide for the CCO to coordinate communications and appoint a spokesperson, and to provide flexibility for the CCO to manage communications in a way that ensures they are appropriate to the circumstance – depending on the circumstances, communications should be coordinated with asset owners, Gas Industry Co and Ministers to ensure consistency of messages, and targeted at consumers where necessary; | See section 7. |

| Concept recommendation | Proposal |
|---|---|
| 21. The Regulations are amended to clarify that the CCO Performance Report should be published in draft form and submissions invited from interested stakeholders, the final version of the report provided to Gas Industry Co, and any submissions received by the CCO during the submission process should be published. | See section 9.4 |
| **Regional and National Contingencies** | |
| 22. Further consideration is given to whether it is necessary to provide some supplementary information about the distinction between national and regional contingencies (clarifying that national contingencies reflect gas supply shortages and regional contingencies reflect gas transport shortages) and the rationale for imbalance calculations only applying during a national critical contingency; | See section 8 |
| 23. The existing arrangements, whereby contingency imbalance calculations and contingency prices only apply to national contingencies, are retained; | See section 8 |
| 24. The Regulations are amended to provide that the CCO should make a declaration as to whether a critical contingency is national or regional, as soon as reasonably practicable following a critical contingency declaration, and allowing for that declaration to be modified during a contingency if required to reflect developments. | See sections 8 and 9.2. |
| **Compliance** | |
| 25. Further consideration is given to how best to enhance the enforcement provisions to cover breaches by non-participant consumers and whether it is necessary to seek changes to the Gas Act. | See section 11. |

## 4.3 Additional matters identified by Gas Industry Co

There are a number of other matters that Gas Industry Co has identified from its own work. Some of these simply reflect that the CCM Regulations have been 'live' for some time, and those aspects of the regulations that dealt with the processes for the CCM Regulations to come fully into effect are now unnecessary. There are other changes that are required to reflect changes elsewhere in the industry

(e.g. the expiry of the contacts between the Crown and the Maui Mining Companies) or are required in order to transition from existing arrangements to the new arrangements contemplated by the proposed changes in this SoP. All of these matters are listed in Table 4.

Because, for the most part, these changes are minor and technical the proposed changes are described in the table and will not be discussed further. Where further discussion and/or analysis are required, it is addressed elsewhere in this SoP.

**Table 4: List of additional matters for amendment**

| Regulation(s) affected | Proposal |
|---|---|
| Regulation 2 (and related definitions(s)) relating to commencement of the Regulations | Delete.<br>Provisions dealt with staged introduction of the CCM Regulations but are no longer relevant now that the Regulations are fully in effect. |
| Definition of 'gas producer' | Delete reference to the 'Crown' |
| Definition of 'National Gas Outage Contingency Plan' and 'NGOCP' | Delete |
| 22(1)(d)(ii) | The drafting is ambiguous and does not clearly define the time at which an electronic message was received. Will be amended to align with the equivalent wording in the Gas (Switching Arrangements) Rules 2008 at 29.4 and 29.4.2. |
| Regulation 23 – Urgent Notices | Consider whether to allow urgent notices to be given by a combination of SMS and publication on a website. In such cases the SMS notice would refer to a notice on a website. This is addressed in section 9.6 |
| Regulation 25 – Appointment of CCO | The drafting is potentially ambiguous as it states that 'any person' can be appointed as the CCO, but elsewhere it could be implied that the CCO be the gas system operator. It is proposed to amend the drafting to make it clear that the CCO is not required to be a gas system operator. This is necessary to allow for the fact that the appointment is by mutual agreement and there is no way to force the gas system operator to fulfil the CCO function.<br>This is a minor and technical change to remove ambiguity. |
| Regulation 33(1) – requirement to maintain current contact details in a critical contingency management plan (CCMP) | Make it clear that updating contact details in a CCMP does not constitute a 'change' to the CCMP that would trigger the change process requiring 'approval' by the industry body (and the accompanying process set out in regulations 27 through 30). |

| Regulation(s) affected | Proposal |
|---|---|
| Regulation 38(1)(d) – reference to the Gas (Information Disclosure) Regulations 1997. | Update reference to the equivalent under the Commerce Commission's information disclosure arrangements under Part 4 of the Commerce Act. |
| Regulation 38 | Review the content of this regulation and expand where necessary to ensure that the CCO has full rights to the information required to meet the purpose of the Regulations. |
| Regulation 39(2) – retailer data to be updated periodically. | This would be improved by requiring retailers to provide an annual update of the consumer data to the CCO. The current drafting makes it challenging for retailers to identify when they need to provide updates and the CCO has reached an informal arrangement that generates annual updates. This is a straightforward clarification, would be more efficient than the status quo as drafted, and is preferable to implementing the same solution by way of a work-around. This is regarded as a minor and technical change as it reduces the burden on retailers and reflects informal practice. |
| Regulation 40(2) – updated load data for the CCO from large consumers. | Large consumers have an obligation to provide updates to the CCO whenever their consumption changes by 20%. Changing this to an annual update would ensure that the CCO has accurate information and eliminates the risk that large users might not be aware of their existing obligations under this regulation. This is a minor and technical change as it reduces the burden on large consumers. |
| Regulation 51 – parties to be notified of the declaration of a critical contingency. | Add 'large consumers' to the list of people that must be notified by the CCO when a critical contingency is declared. Those consumers are first in line for load curtailment in the area(s) affected by a critical contingency. The earlier that they can be notified, then the more time they have to prepare for load curtailment, should it be needed.<br>Add Minister of Health and Director-General of Health to the list of people that must be notified by the CCO when a critical contingency is declared. The Minister of Health can direct hospitals to cease elective surgeries. |
| Regulation 53(1)(g)(i) – CCO to publish updated information on the status of a critical contingency. | Specify the types of information that need to be published. This would ensure that basic information on the critical contingency and its effect on consumers is readily available to everyone. This is addressed in section 7. |

| Regulation(s) affected | Proposal |
|---|---|
| Regulation 53(2) – curtailment of subsets of a curtailment band. | Expand this regulation to make it clear that the CCO can use r53(2) in conjunction with r53(1)(d)(ii) to fine tune the curtailment of one or more bands. For example, if directed curtailment of a band had resulted in too great a reduction in load then a revised curtailment instruction could be issued allowing consumer to resume using gas at up to x% of their normal usage. This is already implicit in the existing drafting but it could be improved by making the wording more explicit. This is considered a minor and technical change. |
| Regulation 54 – role of TSO | • Include a requirement for a TSO, where the cause of the critical contingency event is a pipeline failure, to provide the CCO and/or public with information and regular updates on the state of the asset, estimated time to effect repairs, etc. (see section 0)<br>• Add a provision that requires the transmission system owner to provide any information requested by the CCO |
| 55(2) – Retailers and large consumers to provide regular updates on compliance with retailers' curtailment directives. | At present the CCM Regulations are silent on how often those updates should be provided. Stipulate an upper limit on time between updates of four hours.<br>This is considered to be a minor and technical change as it clarifies the obligations of those parties. |
| Regulation 56(2)(c) – retailers issuing curtailment instructions to consumers. | Where the CCO is able to direct partial curtailment then sub-clause (i) will need to be amended to allow for that. |
| Regulation 60(3) – provides for critical contingency to be terminated as long as the CCO is satisfied that the resulting flows will not precipitate another critical contingency event. | There is a limitation that would prevent this clause being triggered earlier than 12 hours following the declaration of a critical contingency. This limitation can unnecessarily extend the period of time for which contingency imbalance arrangements are in effect. It would be more efficient to remove it. |
| Regulation 62 – notification of termination of critical contingency event. | Augment this regulation to match r51 once revised. |
| Regulation 65 – CCO performance report. | See Section 9.4 |
| Regulation 77 – contingency imbalance information to be provided by TSOs to the industry body | Require the industry body to publish the contingency imbalances (GJ and $) by pipeline so as to provide transparency for all parties to be able to check the calculations. See section 8 |

| Regulation(s) affected | Proposal |
|---|---|
| Regulation 84 – critical contingencies occurring before the 'go-live' date | No longer relevant, delete. |
| | Move the requirement for the CCO to allege breaches that it becomes aware of (contained in the Compliance Regulations) to the CCM Regulations so as to provide sharper incentives on participants and to allow for the distinction between breaches under the Compliance Regulations and offences under the proposed new offence provision.<br>This is a minor and technical change. |

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

# Part II Assessment of reasonably practicable options

The issues to be discussed in the following section can broadly be categorised into six topic groups:

- Critical contingency bands
- Priority access to gas
- Communications during a critical contingency
- Role of the Critical Contingency Operator
- Role of retailers
- Compliance issues
- Other matters

In this part, we set out each of the identified issues, examine why they have arisen, identify reasonably practicable options for addressing them, evaluate those options, and select a preferred option.

# 5 Critical contingency bands

## 5.1 Economic efficiency of curtailment bands

As discussed above, the CCM Regulations adopted the approach followed in the NGOCP: gas consumers are grouped according to the size of their load; and, during a critical contingency, load is curtailed from the largest consumers to the smallest. The survey of international contingency arrangements in the Concept Review highlights the fact that other countries follow similar approaches.

Although it is administratively efficient to curtail large loads ahead of smaller loads, it still leaves a question regarding the economic efficiency of such an arrangement. From the viewpoint of economic efficiency, load curtailment should start with gas consumers who value gas the least, and progress to those users who value it most highly. The issue is whether volume of gas consumption is correlated with the value that the gas provides.

Gas Industry Co has examined this issue from two perspectives. From a simplistic point of view, one can look at prices gas users pay as a proxy for the value they receive from that gas. In this respect, gas values do seem to correspond roughly to the curtailment bands. Industrial users pay wholesale prices for gas that are typically in the range of $6-8 per GJ; commercial customers pay $15-17/GJ; and residential customers pay $33-36/GJ.[10] In other words, smaller gas consumers pay more per unit of gas consumed, and therefore value gas more highly. They are also the customers who are curtailed last in a critical contingency.

To examine the issue of economic efficiency more rigorously, Gas Industry Co asked NZIER to estimate the typical value added per GJ of gas consumed by industry.[11] The analysis shows that, in general, gas consumption volumes are inversely proportional to the value derived from that consumption on a per-GJ basis. That is, industries with high consumption volumes tend to have low value added per GJ, while relatively low consumption volumes correspond with high value added. According to NZIER, the top ten largest industries in terms of gas volumes consume 93% of gas but contribute just 57% of value added, while the remaining 7% of industrial and commercial gas consumption produces 43% of the value added from gas.

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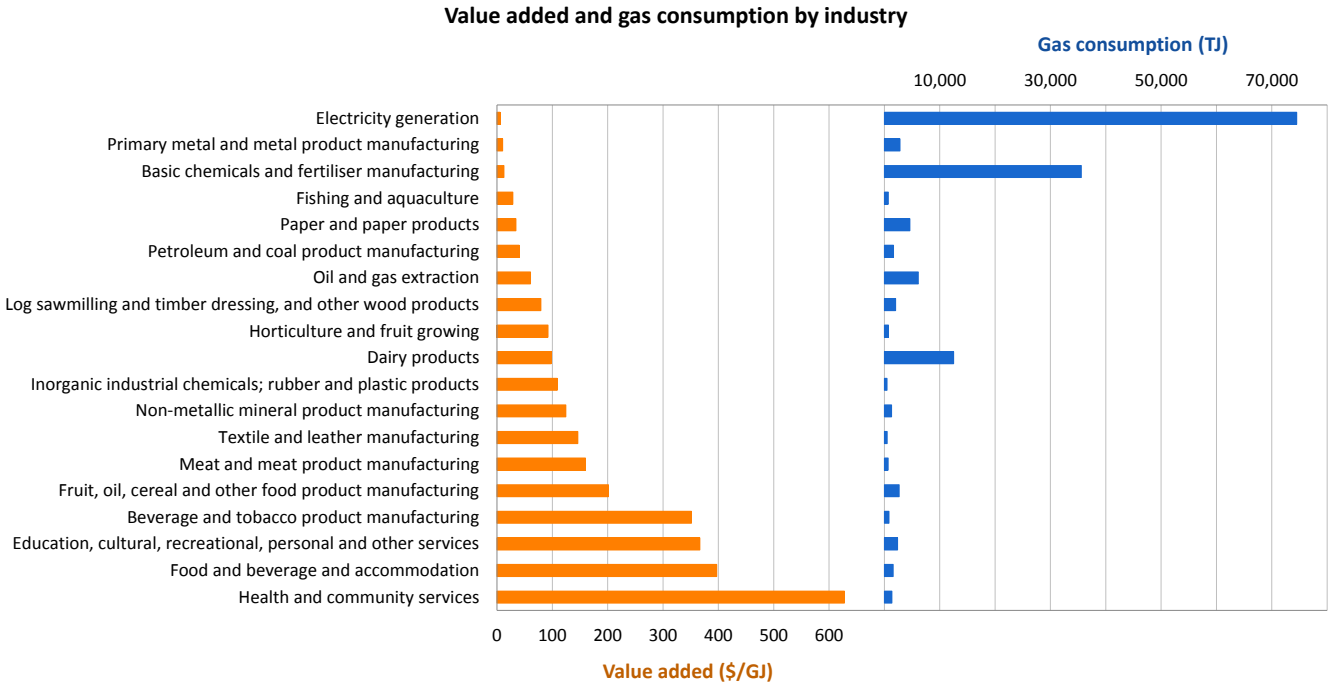
[10] Price data from Energy Data File 2011.
[11] http://gasindustry.co.nz/sites/default/files/consultations/254/2012_october_-_nzier_-_value_added_associated_with_gas_demand_final.pdf

The chart below summarises NZIER's findings. It includes the 19 industries that use, on average, more than 500 TJ of gas per year, and together, they account for 98% of industrial and commercial gas use. The orange bars on the left show the value added per GJ of gas for each industry, and the blue bars on the right show the average annual gas consumption.

**Chart 7 Value added and gas consumption by industry**




*Source: NZIER*

We also asked NZIER to aggregate their findings according to critical contingency management band. The table below shows, for each band, the number of ICPs, the annual gas demand, and the value added, both in total and on a per-GJ basis. For this analysis, bands 1a and 1b have been combined, as were bands 2 and 3, due to the small numbers of ICPs in bands 1a, 1b, and 2. The calculations for bands 4 and 6 use a common rate of value added per GJ based on the remaining economy-wide value added (related to gas) that is not explained by consumption of gas in other curtailment bands.

**Table 5 Estimated value added by CCM band**

2011, real 2007 dollars

| | Band 1 | Bands 2&3 | Band 4 | Band 5 | Band 6 | Domestic | Total |
|---|---|---|---|---|---|---|---|
| **ICPs** | | | | | | | |
| Count | 6 | 1,554 | 1,120 | 379 | 11,569 | 246,052 | 260,680 |
| **Demand** | | | | | | | |
| TJ | 115,200 | 21,648 | 1,974 | 11,060 | 3,467 | 5,704 | 159,052 |
| % | 72% | 14% | 1% | 7% | 2% | 4% | -- |
| Cumulative % | 72% | 86% | 87% | 94% | 96% | 100% | -- |
| **Value added** | | | | | | | |
| $ millions | 2,423 | 1,741 | 580 | 2,339 | 1,019 | -- | 8,101 |
| % of total | 30% | 21% | 7% | 29% | 13% | -- | -- |
| Cumulative % | 30% | 51% | 59% | 87% | 100% | -- | -- |
| $/GJ | 21 | 100 | 294 | 211 | 294 | -- | -- |

*Source: NZIER*

The results of this analysis in terms of value added per GJ show that the critical contingency band designations are broadly in line with economic efficiency. That is, Band 1, the first group of customers to be curtailed, has a lower value added per GJ than the rest of the bands; Bands 2 and 3 have an intermediate value added; and Bands 4 and 6, with higher priority, have the highest value added figure. Gas Industry Co interprets these results as affirming the basic structure and definition of the critical contingency bands as economically efficient.

An obvious outlier in the analysis is the value added calculated for Band 5, the ESP band. The value added of this band, at $211/GJ, is lower than the $294/GJ of Bands 4 and 6. This result is due to the relatively large number of ESP-designated industrial customers, which have relatively low value added per GJ and high consumption volumes. A discussion of the ESP criteria is included in the next chapter.

## 5.2 Combining Bands 2 and 3 into Band 3

Curtailment bands 2 and 3 are both for gas customers consuming more than 10 TJ per year but less than 15 TJ per day. The distinction between bands is that Band 2 is for gas customers with alternate fuel capability, while Band 3 is for customers without back-up fuel arrangements. The Concept Review questioned whether the distinction should be made between these groups, and submissions on the topic were divided.[12]

The definition of the bands again raises the question of how efficient the arrangements are. There are two ways of looking at the issue. On the one hand, it seems efficient to curtail gas users with

[12] A similar distinction exists between the definitions for 1a and 1b – both are for gas consumers using over 15 TJ of gas a day, and 1a is for customers who have alternate fuel sources, whereas 1b customers do not. No suggestions have been received on amalgamating these bands, and the issue is not addressed in this SoP.

alternative fuel supplies first, as doing so would allow such users to keep producing (albeit at the higher cost of their alternative fuels) and it would either delay or obviate the need to curtail Band 3, so those gas users could also keep producing. On the other hand, curtailing gas users with alternative fuel supplies first may create a disincentive for gas users to install alternate fuel capability in the first place, which would be inefficient if it does make economic sense for users to install backup capability.

It may even be that the distinction between Bands 2 and 3 has had a disincentivising effect on consumers' fuel decisions. The gas registry shows that there are only 12 ICPs in Band 2, while Band 3 has over 1,500 ICPs.

Further, the annual consumption of Band 2 is about 2.3 PJ, compared to the 20.2 PJ consumed in Band 3 over the year. In practical terms, the smallness of Band 2 in relation to Band 3 suggests that if the CCO needed to call for demand curtailment beyond Band 1b, it is almost certainly the case that both Bands 2 and 3 would be curtailed at the same time.

These considerations lead Gas Industry Co to think that the distinction between Bands 2 and 3 is no longer justified. The smallness of Band 2 means that the efficiency of curtailment consideration is questionable, and the possibility that the distinction is acting as a disincentive to installing alternative fuel capability should not be dismissed. Gas Industry Co therefore proposes to redefine Band 3 as all gas consumers whose consumption is more than 10 TJ per year and less than 15 TJ per day. To keep from having a gap in the band numbering, we also propose to change Bands 1a and 1b to Bands 1 and 2, respectively. This latter step has minimal administrative cost as only a handful of ICPs on the gas registry are affected and any changes to documentation (e.g. Critical Contingency Management Plans) would not be required to go through a consultation process for such an immaterial change.

| Option | Description |
|---|---|
| **Status quo** | • Curtailment bands 2 and 3 stay as they are:<br>• Band 2: Consumers (excluding essential service providers) with alternative fuel capability.<br>• Band 3: Consumers (excluding essential service providers) without alternative fuel capability<br>• Consumption: more than 10TJ per annum and up to 15TJ per day |
| **Gas Industry Co proposal** | • Redefine Band 3 to include all consumers, excluding essential service providers, who consume more than 10TJ per annum and up to 15TJ per day<br>• Rename Band 1a as Band 1<br>• Rename Band 1b as Band 2 |

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

## 5.3 Possibility of trading 'rights' to gas consumption

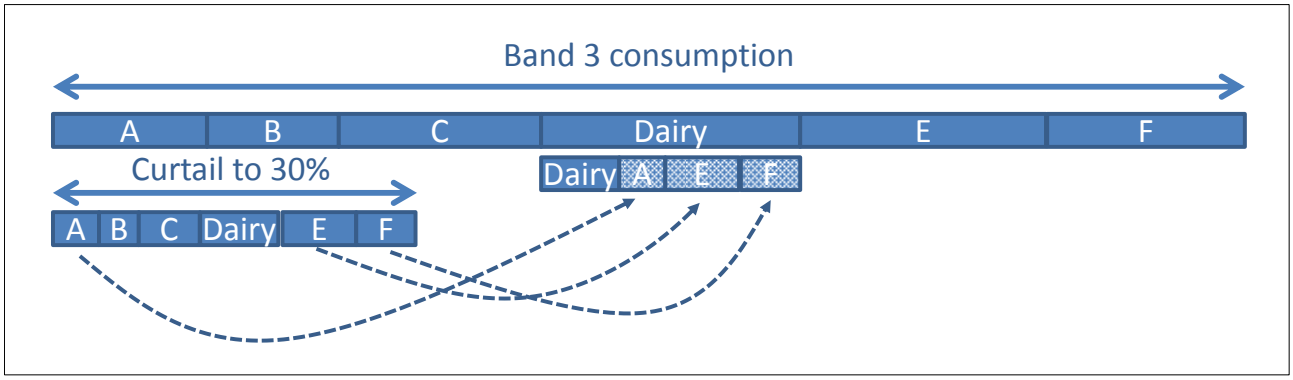
In sections 6.1 and 6.2, we discuss the considerations surrounding the criteria for ESP designations and review the challenging issues that are faced by the dairy industry. The conclusion is that the dairy processing industry, although unquestionably of high value to New Zealand, is difficult to distinguish from other, high value-adding industries in terms of gas market policy. This lack of differentiation, together with the scale of the dairy processing sector, presents significant obstacles to granting dairy factories priority access to gas. The potential flow-on effects from this include an increased pressure on suppliers to dairy factories to make the necessary investments to be able to address on-farm milk disposal in ways that avoid, or at least minimise, the environmental risk that could result from on-farm milk disposal.

A review of the NZIER information suggests that curtailment Band 3 comprises industries that exhibit a wide range of value added. This suggests that there may be an opportunity, in circumstances of partial curtailment of that band, for gas consumers to trade their 'rights' to gas. Assuming this was both commercially feasible and sanctioned by the CCM Regulations, such an arrangement could provide dairy factories with a commercial path to acquire the priority access to gas that they seek.

In practical terms it is likely that there is only a narrow range of critical contingencies for which curtailment Band 3, the band that contains dairy factories and other large industrial customers, would be affected and for which it might be feasible to curtail only a subset of that band. Nevertheless, it is instructive to consider the option.

Figure 1 depicts a scenario in which there are six consumers in Band 3: A – C, Dairy, and E – F. The CCO directs partial curtailment of the Band down to 30% of normal consumption. The 'Dairy' consumer then secures access to the gas that consumers A, E and F would otherwise consume. This results in a situation where the CCO has achieved the desired reduction insofar as Band 3, in total, is consuming 30% of its normal gas consumption. Consumers B and C are each consuming 30% of their normal gas consumption. The Dairy consumer has secured 'rights' from A, E and F equivalent to 70% of its normal consumption, allowing it to operate at full output. To make the gas available to Dairy, consumers A, E and F have completely shut down.

**Figure 1: Example of trading rights in Band 3**




This example shows that, subject to the appropriate institutional arrangements, an opportunity exists to enhance economic efficiency by allowing gas users in that band to trade their rights to consume

gas. However, implementation would need to be subject to a number of strict caveats. These would include the following:

- each of the consumers would need to have ToU meters so that compliance with curtailment instructions could be monitored; this means they would have to be in Band 3 or lower;
- arrangements would need to be put into place before any critical contingency event and documentation provided to the TSOs, CCO, and Gas Industry Co, including possible scenarios and how they would work in practice;
- parties wishing to trade rights during a critical contingency event would need the CCO's approval before using traded gas rights, including so the CCO can confirm that trades are only occurring in reasonably close physical proximity;
- monitoring (either in real-time or after the event) would need to check that the buyer's increase in consumption is matched by sellers' aggregate decreases – so overall curtailment response is the same (and, in the case of real-time monitoring, rapid adjustments can be made where that was found not to be the case); and
- appropriate arrangements and information sharing would be required as between retailers, buyers and sellers of 'rights' so as to ensure that all parties were aware of the overlay of gas prices, contingency imbalance payments (in the case of a non-regional critical contingency), and the residual value that might be attributable to 'rights'.

Although the CCM Regulations would need to be amended to provide for such an arrangement, implementation would need to be the responsibility of retailers and their customers. In addition, all parties would need to understand that recipients of traded rights would be subject to individual curtailment where the CCO deemed further curtailment was necessary.

Gas Industry Co is not advocating this as a solution but is willing to facilitate discussions to explore the feasibility of this option if there are parties who wish to take this further.

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

## 5.4 Partial restoration

Recommendation 16 of the CCO Performance Report expressed a concern that the CCM Regulations '*do not expressly envisage a situation where the transmission system is curtailed and then partially restored*'. In the situation that prevailed, the CCO was able to achieve the desired end result simply by revising the existing curtailment directions, as provided for in regulation 53(1)(d)(ii).

To some extent this becomes a matter of drafting. Curtailment directives had been issued based on an assessment of the extent of curtailment required to stabilise the pressure in the affected parts of the transmission system. Once the outcomes of those curtailment directives were known, it became clear that less curtailment was actually required. As a result, curtailment for Band 5 was able to be

rescinded on Wednesday morning with a rider that 'gas be used sparingly', and curtailment for Band 6 was rescinded on Thursday morning with the same rider.

This makes a clear distinction between the situation that prevailed during the week beginning 24 October 2011, when a critical contingency was on foot and ongoing curtailment was necessary, and the conditions on Sunday, 30 October 2011, when restoration of gas supplies was able to be implemented.

Amending the CCM Regulations to allow for 'partial restoration' creates a risk that gas users may not understand the subtleties and act precipitately by electing to use gas again when their curtailment band may continue to be subject to curtailment for hours or days. Such a response would be detrimental to the efficient management of a critical contingency. The safest course is to defer using restoration until the criterion in regulation 53(1)(e) is met: '*…the critical contingency operator is satisfied that it is appropriate to restore gas supply…*'

Regulation 53(2) grants the CCO broad discretion to '*direct curtailment of only a subset of load within a curtailment band*' provided that the CCO does so in accordance with the objectives in Schedule 2. That regulation also provides two examples of subsets but the drafting makes clear that the discretion is not confined to the situations described in those examples. Gas Industry Co has not been able to identify a scenario that would not work with the existing discretion (and that would require amendment of the regulations dealing with restoration). Accordingly, it is considered that the CCM Regulations, as drafted, provide the CCO with the necessary tools to manage the situation when it is identified that less curtailment is required.

One change that will be required is an amendment to 56(2)(c) to allow retailers to reflect partial curtailment directives.

| | |
|---|---|
| *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?* |

# 6 Priority access to gas

The CCM Regulations currently provide for certain classes of customers to obtain priority access to gas.

The first of these, the ESP designation, provides for designated gas customers to move to a higher priority (higher numbered) curtailment band (Band 5), which allows for later curtailment and earlier demand restoration than would otherwise be the case. In some critical contingencies, the curtailment of lower-numbered curtailment bands may be sufficient to manage the contingency, so that ESPs are unaffected by the event. However, as in the October 2011 outage, the CCO may also have to curtail Band 5. At present, to be eligible to apply for ESP designation, a customer must use at least 2 TJ per annum (applies to consumers in curtailment bands 1a through 4) and provide services that are considered essential according to certain criteria.

The second category, the MLC designation, allows a gas user time to undertake a controlled shut-down of its plant so as to avoid serious damage to plant or to mitigate serious environmental damage. Customers using in excess of 10 TJ per annum (i.e. customers in curtailment bands 1a through 3) can apply for MLC status. When a gas user with an MLC designation is directed to curtail by its retailer, that user is required to commence the agreed shutdown procedure so as to reduce its gas consumption in the shortest time possible commensurate with minimising plant and/or environmental damage. Once gas consumption has been reduced to an agreed level, the plant may continue to use gas at that rate until Band 4 is curtailed, at which point all MLC designates must curtail in full.

## 6.1 Essential service providers – analysis of status quo

The notion of priority access to gas for essential purposes was inherited from the NGOCP, and the CCM Regulations use the objectives in the Schedule of the National Civil Defence Emergency Management Plan Order 2005 (NCDEMP Order) as criteria for designating ESPs. The intention to review the curtailment bands has been signalled since the earlier policy development and consultation processes that led to the CCM Regulations.[13] The Concept Review outlined a number of aspects of ESP designations that stakeholders thought needed to be addressed.

[13] See, in particular, paragraphs 9.30 and 9.31 of the *Statement of Proposal: Gas Outage and Contingency Management Arrangements*, August 2007 (available at http://gasindustry.co.nz/sites/default/files/consultations/andrew.walker@gasindustry.co.nz/Statement_of_Proposal.pdf ) and paragraphs 5.35 and 5.36 of the *Gas Outage and Contingency Management Arrangements:*

In particular, Concept reported that many stakeholders considered that the current ESP criteria and associated guidelines are too wide and general, and could potentially allow for too many consumers to gain ESP designation. Some stakeholders suggested that the NCDEMP Order may not appropriately reflect the issues that arise during a gas critical contingency. Further, the NCDEMP Order objective of 'preservation of economic activity' is perceived by stakeholders as too broad and lacking in clarity. Some stakeholders also expressed concerns that it was not sensible to treat all ESP designations with equal weight; in particular, that critical care facilities should have higher priority than gas users designated as ESPs for other reasons.

In terms of the process for designating ESPs, Concept received widespread feedback that retailers are not the best party to approve ESP designations, as they may have a commercial incentive to take a lenient approach to designating customers as ESPs. It was also noted that designations can become 'political', with consumers seeking to influence outcomes via media and the government. Stakeholders also expressed concern about the number of designations that occurred during the October 2011 event.

### Analysis of ESP designations

To assist with the review of the CCM Regulations, Gas Industry Co requested information from gas retailers on the ESP designations the retailers had made. All retailers complied with the request and an analysis of this information bears out many of the concerns with the process and the criteria that were identified by stakeholders.

Retailers provided information on a total of 364 ICPs that they have designated as ESPs: 359 are listed on the registry, and the remaining five are on bypass networks. Of the ICPs listed on the registry, all but two have the status of Active Contracted (ACTC); the other two have a status of Inactive-Transitional (INACT[14]). Interestingly, the retailer list does not perfectly coincide with the ICPs in Band 5 according to the registry. A comparison of the two lists shows that there are:

- 341 ICPs on the retailer ESP list and in Band 5 in the registry (339 ACTC; 2 INACT);
- 37 ICPs in registry Band 5 with ACTC status but not on the retailer list;
- 23 ICPs on the retailer list but not in Band 5 in the registry.

Gas Industry Co is aware that the ESP list maintained by the CCO has a total of 407 ESPs on it and is different again.

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*Supplementary Consultation Paper*, December 2007 (available at http://gasindustry.co.nz/sites/default/files/consultations/andrew.walker@gasindustry.co.nz/Supplementary_Consultation_Paper.pdf ).

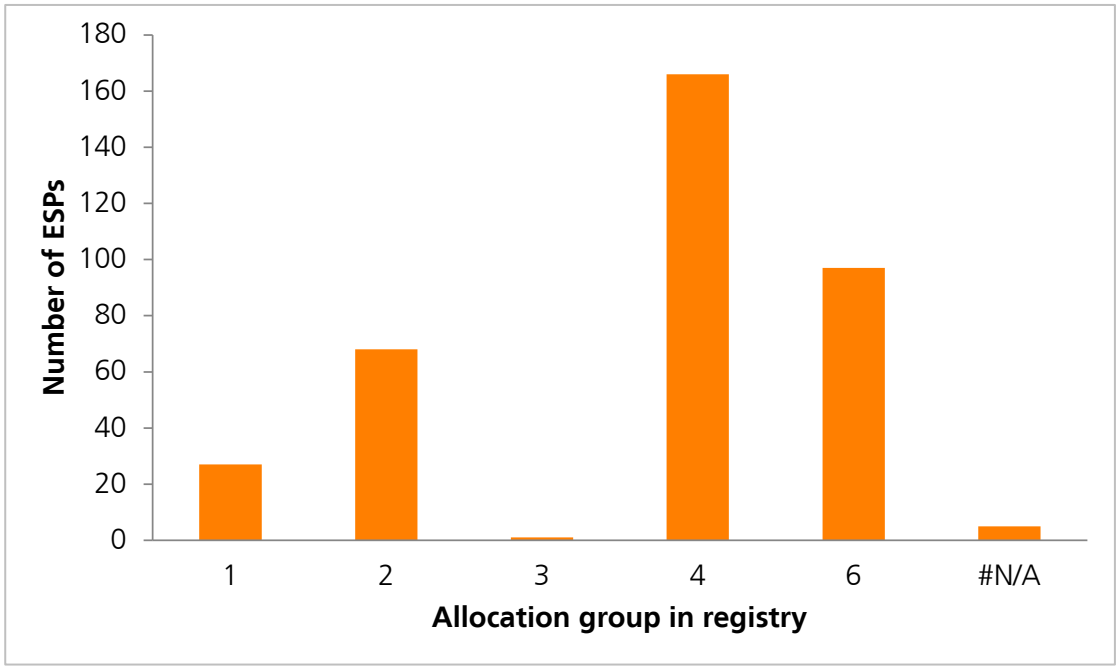
[14] ACTC, or active-contracted, refers to an ICP which is both active (i.e. gas can flow to the consumer installation) and where the responsible retailer has a contract with the consumer. INACT, or inactive-transitional, refers to an ICP where gas is not able to flow to the consumer installation due to a transitional (non-permanent) disconnection of supply.

One of the criteria for designation as an ESP is gas consumption in excess of 2 TJ per year. Commercial consumers who use less than that amount of gas are categorised as Band 6, so already have a higher priority in a critical contingency than ESP consumers, who are in Band 5. Critical contingency bands do not map exactly to allocation groups under the Gas (Downstream Reconciliation) Rules 2008: gas consumption of 10 TJ or more per year corresponds to allocation groups 1 and 2; consumption of more than 250 GJ per year corresponds with allocation groups 3 and 4; and consumers who use less than 250 GJ per year are in allocation groups 5 or 6. Therefore, a consumer who uses more than 2 TJ per year would be in allocation group 1, 2, 3, or 4.

In practice, though, there were 97 ICPs in allocation group 6 that have been given ESP status by their retailer, as shown in the chart below. This figure represents over 26% of retailer designations.

This situation highlights a number of possible concerns, including that retailers have not always followed the designation criteria and that participants perhaps do not understand how curtailments work (since moving from curtailment Band 6 to 5 would seem an illogical step for a gas consumer to take).

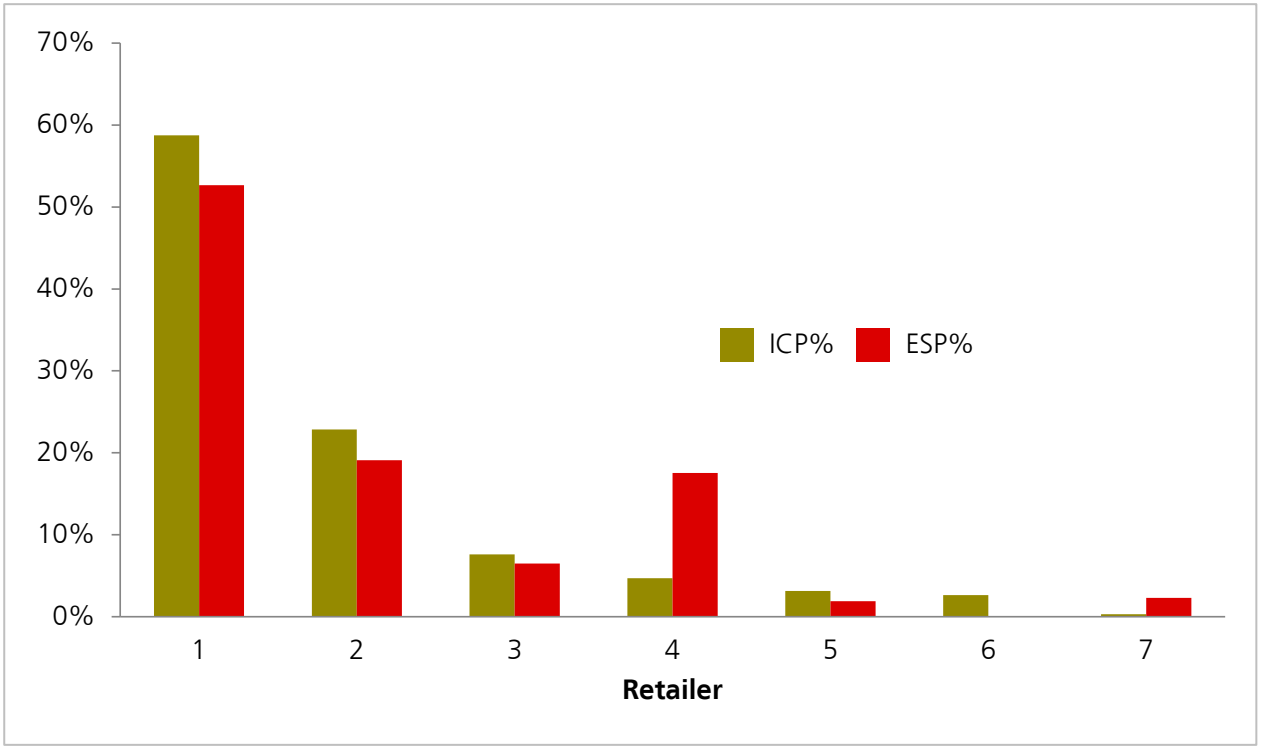
**Chart 8 ESPs by Allocation Group**




Another way to examine the ESP data is to analyse the relative number of ESP designations granted by individual retailers. All else being equal, it might be reasonable to assume that a retailer's market share of ICPs would be roughly equal to its share of ESP-designated consumers, but, as the chart shows, there are significant deviations from this pattern. The chart below compares percentages of ICPs and ESPs for the seven individual gas retailers (anonymised as Retailers 1 through 7). The percentage of ICPs includes only those ICPs in allocation groups 1 through 4 because, as discussed above, ICPs in allocation groups 5 and 6 do not qualify to be ESPs under current designation criteria.

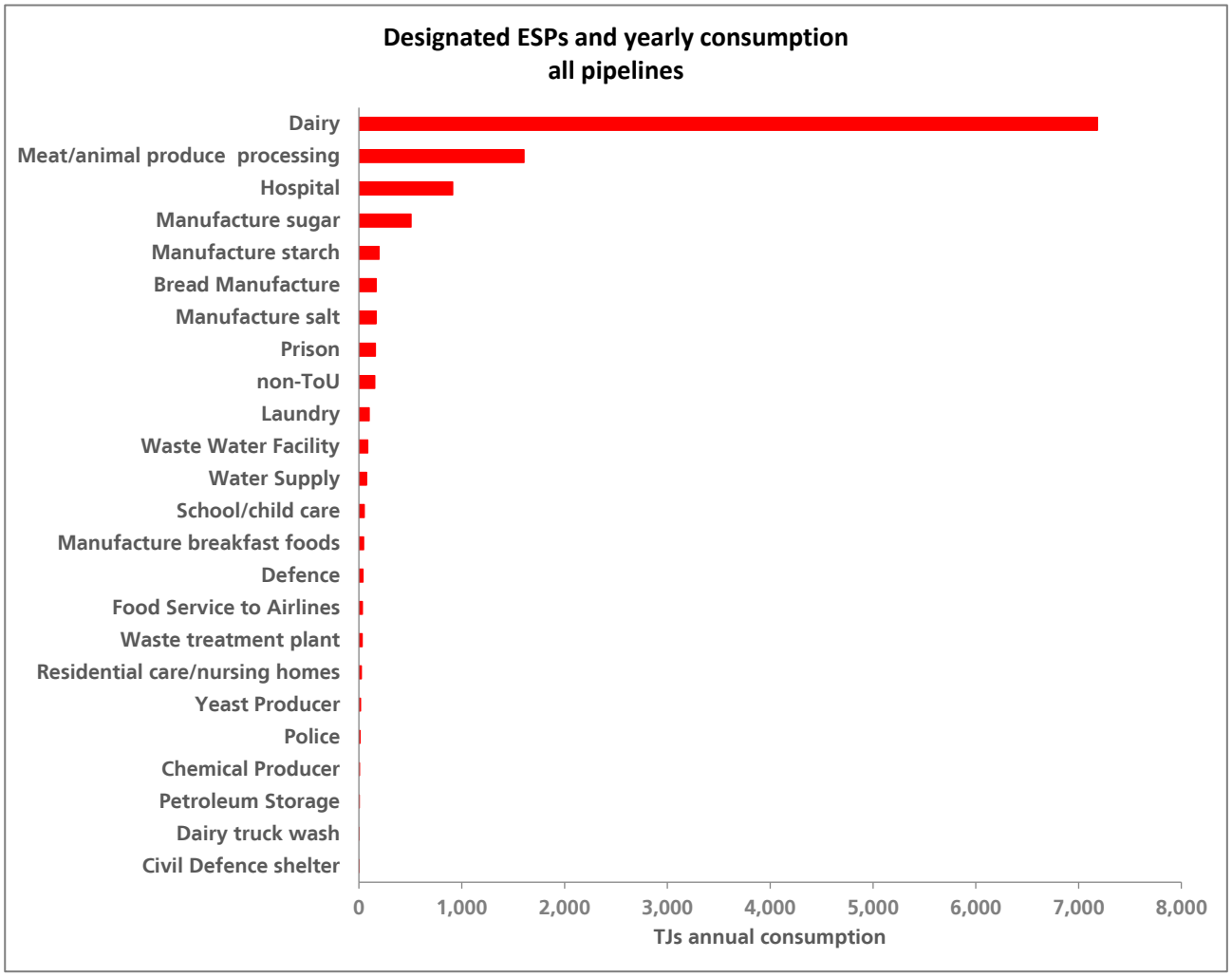
The chart suggests that there has been variability amongst retailers in ESP designations. This was an issue raised in the stakeholder feedback documented in the Concept Review: that the criteria for ESP designations can be difficult to apply, and differing interpretations are likely to result in inconsistent decisions amongst retailers.

**Chart 9 ICPs vs ESPs in Allocation Groups 1-4**



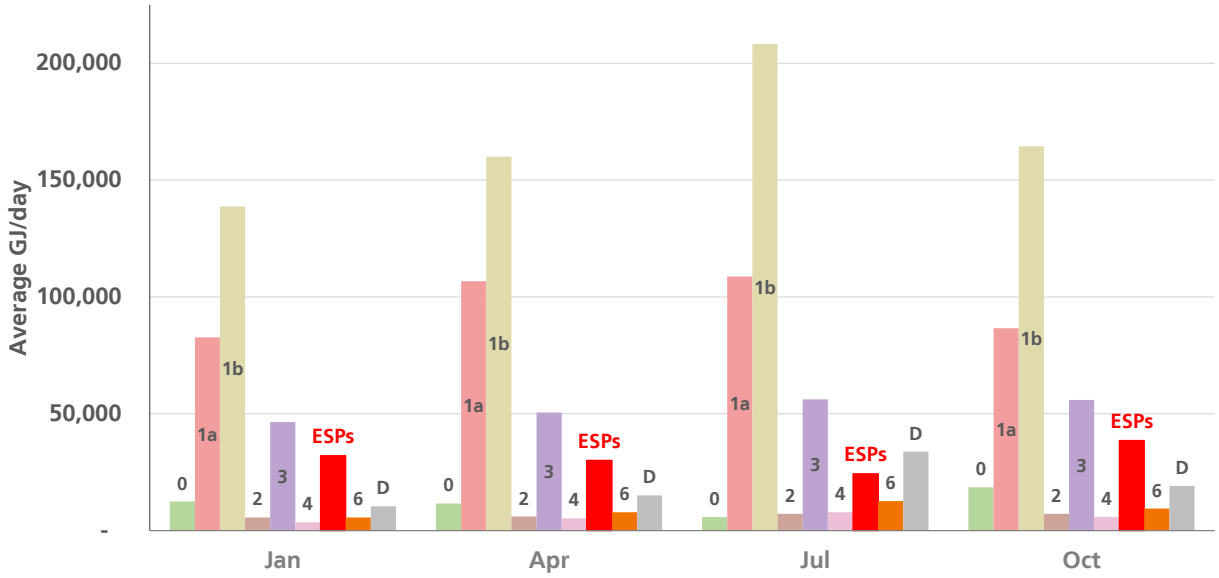

That the ESP criteria are open to interpretation can be seen in the chart below, which shows a number of the types of businesses that have been designated as ESPs by their retailers. Although some of these listings seem unambiguously to satisfy the criteria for ESP designation, others are incorrect or much less clear-cut.

**Chart 10 ESP-designated ICPs and yearly consumption**




Another concern raised in the Concept Review is the possibility that the designation criteria, broadly interpreted, could lead to such a broad swathe of ESP designations that it would be difficult for the CCO to manage. That concern would appear to be borne out by the data in the chart below. Although the relative proportions vary across a year, it appears that a significant proportion of load has migrated from lower priority bands (1 through 4) to the ESP band (5).

**Chart 11 Average daily consumption by critical contingency band**




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

## 6.2 Proposal for revising ESP criteria

As the proportion of load that resides in the ESP band becomes larger, it will increase the likelihood of the CCO needing to curtail the ESP band in a critical contingency that requires deep cuts. Put another way, loose application of the criteria, so Band 5 comprises a mix of essential and non-essential services, makes it more likely that truly essential services may be unnecessarily deprived of gas in certain circumstances. The above analysis indicates that there is a strong case for both tightening the criteria for being designated as an ESP and ensuring consistent application of the criteria by having those decisions made by a single body.

This is justified in terms of the need to ration scarce volumes of gas in critical contingency scenarios; to give genuine priority to truly 'essential' services; and to send clear signals and incentives to other users that they need to look at other risk management options. Furthermore, gas users – whether or not they are ESPs – cannot assume there is sufficient gas during a critical contingency to continue operations and need to consider options appropriate to their circumstances.

### Considerations in setting criteria for essential service providers

Given that curtailing load is the CCO's primary tool for controlling a critical contingency, it is crucial that any exceptions be well-justified and tight. Every additional customer that is given priority access to gas weakens the CCO's ability to successfully manage a critical contingency. The reason for directing curtailment is to achieve an appreciable change to the rate at which pipeline pressure (and linepack) is declining. That, in turn, extends the time to failure, i.e. the time at which delivery pressures fall to such a level that it is no longer possible to maintain safe operating pressures in the downstream networks. If the volume of load classified as 'essential' becomes too large, then it limits the CCO's tool for

managing a critical contingency event and greatly increases the risk of putting the downstream networks out of commission.

From an economic point of view, providing priority access to gas for an ESP is not costless, as that priority comes at the expense of the curtailment of the alternative uses to which the gas would otherwise be put. These costs accrue privately to the owners of those alternative uses, as well as socially; as society in general is deprived of the value of the alternative uses. It is therefore important that the benefits of providing priority gas to ESPs outweigh those costs. As outlined in the previous chapter, analysis undertaken by NZIER shows that the value added per GJ of gas consumption increases as one moves up the curtailment bands (that is, the value added of Band 4 customers is higher than that of Band 3, which in turn is higher than Bands 1a and 1b). During the Maui Pipeline outage, though, Band 6 customers were curtailed, while Band 5 customers (which contained a number of ESP designations determined during the event) were able to use gas. Based on the information from the NZIER Report, that situation almost certainly provided a net public dis-benefit.

Analysis of likely contingency scenarios also sheds light on the need, or otherwise, for ESP designations. Historically, production station outages have been of short duration (usually intra-day); and pipeline issues have not been prolonged (5-6 days).[15] Put together, these factors mean that gas contingencies in New Zealand generally are short and sharp: relatively short in duration, but involving significant loss of supply to one or more regions. The criteria for determining ESP designations therefore need to be determined in light of what is likely to be truly essential over those relatively short time periods. In contrast, the Concept Review highlights that in places like the highly meshed gas network in Europe, the key concern in relation to a gas outage is a long-term disruption to a key supply source that affects the ability to meet peak gas demand. Of course, in the event of a protracted gas outage in New Zealand, it is expected that a civil defence emergency could be declared and Ministry of Civil Defence and Emergency Management (MCDEM) would be able to assess the situation and re-prioritise gas use as it saw fit.

**Qualities of an Essential Service Provider**

In principle, the reason for distinguishing essential service providers is precisely as the name implies: they are gas consumers who provide services that society finds 'essential'. These public goods and services include such things as hospitals, wastewater treatment plants, and other key infrastructure.

Some previous designations have been granted on the basis that the gas user was a supplier to another gas user who was an ESP. Such designations risk an unacceptably large number of ESPs being created. Under the proposed new arrangements, ESPs may need to make appropriate arrangements to ensure that they have sufficient supplies in the event of a critical contingency, or that their suppliers are themselves resilient to a gas outage.

[15] Note that the majority of contingency events have lasted less than 24 hours, and the longest six days (the 2004 Pohangina River Bridge failure, which affected supply to Hawkes Bay, lasted five days; the 2011 failure of the Maui Pipeline lasted six days).

Previous ESP designations have also been based on providing priority access to gas in order to prevent environmental or other harm from occurring during a gas outage. Such designations do not accord with the reason for having the ESP category; may well unacceptably deplete the limited volumes of gas available during an outage (based on volumes currently allocated to ESPs for such purposes); and appear to conflict with purpose of the CCM Regulations. If there is foreseeable harm that could result from a gas outage to a particular plant, such as environmental damage or risks to personal health and safety, then there are also obligations on the plant's owners and operators to ensure that those risks are mitigated to the extent required under the relevant legislation, namely the Resource Management Act 1991 (RMA) and the HSEA. ESP designations cannot be relied upon as, nor are they meant to provide, a means for mitigating foreseeable risks or fulfilling requirements imposed by environmental or health and safety legislation; rather, they are a means to prioritise gas to those users who provide essential services to society.

Further, even if it was possible to provide priority access to gas users who face private risks from gas outages, it would seem inappropriate to do so. Gas outages at a particular location can occur for a number of reasons, including critical contingencies where no gas is available for allocation, as well as other instances that do not involve a critical contingency, such as a localised problem at the gas gate or on the consumer's site. In these instances, there would be no gas flowing to the site at all, and so the existence or otherwise of an ESP designation would be beside the point: the consumer would have to cope with the consequences of having no gas. It is therefore essential that gas consumers manage their own risks of non-supply: an ESP designation has only a limited role as part of a risk mitigation strategy. Indeed, to designate ESPs on this basis could be construed as providing false assurances of constant gas supply, which in turn would provide the wrong incentives in terms of gas customers preparing themselves for contingency events.

**Alternative fuel capability**

One of the questions raised in the Concept Review was the appropriate treatment of gas users who meet the criteria to be designated as an ESP but who also have alternative fuel capability. The justification for designating a gas user as an ESP and placing them in a higher priority band is that the essential nature of the goods or services they provide is such that it is of more value to society to curtail other gas users ahead of ESPs.

If a gas user who would otherwise be eligible for ESP status has alternative fuel capability, then there appears to be no argument as to why they would need to be designated as an ESP. Curtailing their use of gas would not prevent that gas user from being able to continue their operations. Admittedly the use of the alternative fuel will be accompanied by increased costs (and, possibly, some inconvenience), but the organisation has already determined that the essential nature of the business is such that the investment in alternative fuel capability is justified.

Gas Industry Co concludes that gas users with alternative fuel capability should not be eligible for ESP designation.

**Criteria for critical care providers**

The inclusion of critical care providers as ESPs was well-supported in the submissions to the Concept Review, although the report did not suggest criteria to define critical care providers. This section discusses categories of gas users, usage criteria, and the concept of essential usage in relation to critical care providers.

Gas Industry Co proposes that the 'critical care providers' definition would include the following types of gas users:

- Hospitals (though possibly excluding elective procedures)
- Prisons
- Hospices
- Residential care facilities and rest homes
- Specialised medical service providers to critical care facilities (medical laboratory services, blood supplies, non-shelf-stable medical supplies)
- Laundry supplies to critical care facilities

At the moment, gas users must consume more than 2 TJ/annum to qualify for an ESP designation. Gas Industry Co considers that it would make no sense to prioritise, say, a larger rest home over a smaller one, so we propose that the consumption threshold be removed for critical care ESP designation. This is consistent with the recommendation in the Concept Review and with submissions on the topic.

The inclusion of prisons in the above list reflects significant health, security and safety risks associated with curtailing gas supply. As part of any designation, each prison would need to detail the uses to which gas is put and explore options for reducing gas usage to the bare minimum, but consistent with continued safe operation of the institution and welfare of the inmates.

It seems reasonable that providers of perishable medical products to critical care providers also be included in the list. Through consultation with stakeholders, we have identified such potential gas users as suppliers of blood products and specialised medications that would be eligible for ESP designation. We have also included laundries that are suppliers to critical care providers, as clean linen is crucial for the safe and hygienic operation of critical care facilities. However, such designations would only be for the amount of gas necessary to supply ESP-designated facilities, rather than the amount needed to supply their entire client base.

**Criteria for other essential service providers**

<u>Foodstuffs</u>

As noted above, it is expected to be rare for a gas outage to last longer than 5-10 days. It is unlikely that consumers would face significant food shortages in that time. The lack of certain foods may give

rise to a degree of inconvenience for retail customers, but the short-term nature of gas outages is such that substitutes (be that different brands or different foodstuffs) are likely to be available. Therefore, there appears to be no justification for exempting food manufacturers from curtailment.

Environmental protection

The existing MLC arrangements make provision for mitigating the risks of serious environmental damage from curtailment. Beyond the existing MLC designates, and those who will become eligible for MLC designation under the proposals contained in this SoP (discussed below), we have identified only a small group of gas users that are, themselves, engaged in operations that would lead to environmental problems if they were curtailed: waste water treatment plants. Curtailing these users would also have human health implications. Given their relatively small scale, and subject to ensuring that only the bare minimum of gas is used, it would be possible to accommodate such users in Band 5 – but they would need to have emergency plans in place to deal with total curtailment when directed.

Flow-on environmental effects

Another area in which stakeholders have expressed concern is the potential risk of environmental damage if dairy farmers have to dispose of milk on farms due to dairy factories having their gas use curtailed. Such risks do not currently fall within the criteria for ESP designations, although it appears that some designations may have been granted on such grounds. Dairy processors have suggested there is a need to prioritise gas for dairy factories so as to avoid environmental problems that would arise from widespread, on-farm milk disposal. Thus, the problem arises not at the dairy factories, which are the gas users, but because milk may not be collected from farms.

Loss of gas is only one of a range of reasons why milk may not be collected[16]. There are both established requirements to avoid such discharges under the RMA and a range of methods available for dairy companies and farmers to comply with those requirements. In the context of a need to carefully justify any priority use of gas during critical contingency events, it is important to set incentives so that dairy companies and farmers make the best decisions to avoid or mitigate harm to the environment. This is consistent with not extending the ESP criteria to include such situations.

In that regard, we are aware that at least one dairy company is investigating options for increasing its resilience against gas outages and other supply risks by providing alternative backup energy supplies. Gas Industry Co strongly supports such measures. To the extent that the value attributable to milk processing is higher than other industrial uses, the suggestion outlined in section 5.3 may offer an opportunity for such higher value uses to trade some of that value in return for a higher level of access to gas.

[16] see http://www.boprc.govt.nz/news-centre/media-releases/january-2012/farmers-to-use-emergency-milk-disposal-option/.

*The Case of Milk Disposal*

Gas Industry Co commissioned a report from Lowe Environmental Impact (LEI) to identify the options and risks associated with on-farm milk disposal.[17] The LEI report showed that there are a number of options that, if used correctly, would allow dairy farmers to dispose of milk on-farm without serious risk to the environment. That information is consistent with the advice that exists on the websites of regional councils (and that of Dairy NZ, the 'industry good organisation') providing advice to dairy farmers about how to dispose of milk in emergency situations. It must be acknowledged that such disposal is not a 'permitted activity' under the RMA. But, given the guidance that is provided by the organisations responsible for administering the RMA in their regions, it seems that on-farm milk disposal in the midst of a gas critical contingency is unlikely to attract enforcement action if managed correctly. In that regard, Gas Industry Co has found no reports of enforcement activity following the October 2011 outage.

The scale of gas consumption by the dairy sector (see Chart 3 on page 37) is such that its inclusion multiplies the aggregate size of Band 5 by a factor of more than 2.5. Given that scale, and the relatively small scale of Band 6, in a serious regional critical contingency it is unlikely that the CCO could manage without curtailing the dairy processing load. Accordingly, only in limited circumstances does ESP status address the risk that the dairy sector seeks to avoid.

**Conclusion on ESP categories**

The above factors lead Gas Industry Co to conclude that, beyond critical care providers, there are few other categories that would warrant priority access to gas. Those categories include:

- mortuary services, crematoria;
- incineration of biohazards;
- water and wastewater; and
- police, fire, and other emergency services.

Incineration of biohazards is considered essential because of the links to public health and safety. Likewise, maintenance of municipal services such as potable water supplies, and wastewater processing and disposal have clear links to public health and safety.

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

[17] http://gasindustry.co.nz/sites/default/files/consultations/254/2012_october_-_lowe_enironmental_impact_-_milk_plant_outage_report_final.pdf

## Essential service provider curtailment bands

The Concept Review recommended a number of changes to the curtailment bands with respect to ESPs. At the moment, ESPs are in curtailment Band 5. Concept recommended the creation of a Band 7 for critical care services, which would give those consumers the highest available priority under the CCM regulations. Concept also recommended splitting Band 5 into two sub-bands: Band 5a for minimum supplies to avoid substantial economic costs and 5b for minimum supplies for essential food production and environmental protection. On Concept's proposals for Band 5b, the issues of food production and environmental protection in relation to ESPs are discussed above.

Providing critical care providers with a higher level of priority through a newly-created Band 7 would improve the status quo insofar as it avoids hospitals and other critical care providers from being curtailed ahead of hospitality outlets and other small businesses. Band 6 consumers are gas consumers using less than 2 TJ of gas per year, including cafes, restaurants, hotels, schools, high street businesses, and small manufacturers. In a critical contingency where gas supply was extremely limited, it would make sense to curtail these customers ahead of critical care providers.

On the other hand, submitters raised concerns with the proposed Band 5a, stating that 'substantial economic costs' would be extremely difficult to define; and the process of establishing those costs among gas consumers would be difficult to implement. Gas Industry Co shares these concerns. In order to prioritise certain businesses or parts thereof ahead of other business requires the analysis and ranking of all of the affected businesses in terms of economic costs of curtailment. The costs of curtailment are unlikely to be static; instead, they will change depending on the time of day, the time of the year, industry factors, and individual plant conditions. Any attempt to quantify these costs across all gas users is likely to be time-consuming, intrusive, and inaccurate. Even if such an analysis were feasible, the cost of conducting the analysis would likely be prohibitive.

Further, the information from NZIER indicates a strong correlation between reducing energy intensity and increasing value added per unit of gas consumed, so that the curtailment bands already roughly reflect the economic costs of curtailment. Also, it must be borne in mind that any curtailment of gas consumption imposes costs; rearranging curtailment priorities to assuage these costs would merely end up reassigning those costs.

For all of these reasons, Gas Industry Co is not proposing to subdivide Band 5 as proposed by Concept.

## Conclusion on essential service provider criteria

Gas Industry Co proposes a refinement of the option in the Concept Review that would see the criteria for essential service providers changed to the following:

| Category | Consumption threshold |
|---|---|
| Band 7 - Critical care providers:<br>Hospitals (non-elective)<br>Hospices<br>Residential care facilities and rest homes<br>Specialised medical service providers<br>Prisons<br>Laundry supplies to critical care facilities | None |
| Band 5 - Other essential services:<br>Mortuary services, crematoria<br>Incineration of biohazards<br>Water and wastewater<br>Police, fire, and other emergency services | Greater than 2 TJ per year |

## ESP designation only applies to the essential part of an operation

In terms of gas used by an ESP, it is appropriate to distinguish the amount of gas needed to provide the essential services during a critical contingency from the amount of gas the user would consume on a regular basis, which generally will include some non-essential uses. In line with a recommendation in the Concept Review, ESPs would be able to consume only the volumes required for the essential services. In the case of critical care providers, for example, this could mean that hospitals would be able to use gas to provide acute care and emergency care services during a critical contingency, but not for services such as elective surgery or other elective care. Where a facility offers both urgent/critical and elective procedures, the ESP designation would only be available for the urgent/critical procedures.

A similar distinction could be made for hospices, residential care facilities, and rest homes. Although the bulk of gas usage at such facilities is likely to be essential, such as gas for heating living areas, water heating, and cooking, there may be some gas usage that would not fall into this category, such as for heating swimming pools or saunas. Part of the application and approval process would be to identify whether there are opportunities to reduce gas usage during a critical contingency event without compromising the standard of care and, if so, designate only the essential portion as an ESP.

Accordingly, Gas Industry Co proposes that ESP designations will be for only that part of the operation that meets the ESP criteria and, wherever practicable, consumption levels will be analysed by Gas Industry Co after any critical contingency event so as to identify any non-compliance.

## Practicable options for amending ESP designations

Taking all of the above information together, Gas Industry Co considers that changes to the existing arrangements are required so as to achieve:

- more efficient arrangements for ensuring gas supply is prioritised to truly essential uses in times of scarcity; and
- clearer criteria for determining the types of customers that will qualify for ESP status.

The following table lists the status quo together with three alternatives for changing the arrangements.

**Table 6 Options for ESP criteria**

| Option | Description |
|---|---|
| **Status quo** | The existing arrangement under the CCM Regulations<br>• establish curtailment Band 5 for ESPs;<br>• allow gas users with annual consumption greater than 2TJ/annum to apply to be an ESP; and<br>• use the objectives from cl.59(4) of the Schedule to the National Civil Defence Emergency Management Plan Order 2005. |
| **Concept Review** | The Concept Review recommended:<br>• splitting Band 5 into Band 5a (minimum supplies to avoid substantial economic cost) and Band 5b (minimum supplies for essential food production and environmental protection); and<br>• creating a new Band 7 for 'critical care services' that would have the highest priority (but for domestic customers who are not subject to the CCM Regulations). |
| **Concept Review – amended** | In the analysis of submissions Gas Industry Co considered the option from the Concept Review, together with the feedback from submitters, and concluded that there were practical difficulties with Band 5a. In addition, the relatively short-term nature of critical contingency events suggests that the 'essential foodstuffs' category may be hard to justify in practice. Similarly, there are limited situations where gas consumers need to address environmental issues and those may be better addressed with the existing MLC category.<br>As a result, Gas Industry Co proposes an amended version of the proposal in the Concept Review that would:<br>• create a new Band 7 for 'critical care providers'; and<br>• narrow the categories for the existing Band 5 to include:<br>o Mortuary services, crematoria;<br>o Incineration of biohazards;<br>o Municipal services: water and wastewater; and<br>o Police, fire, other emergency services. |
| **Critical Care only** | A further option would be to:<br>• create a new Band 7 for 'critical care providers'; and<br>• eliminate Band 5 altogether. |

## Evaluation of options

The purpose of the CCM Regulations is to '*achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply*'.

The status quo, using the objectives in s59(4) of the Schedule to the NCDEMP Order as criteria to identify ESPs, has a number of shortcomings discussed earlier in this SoP. Accordingly, each of the alternatives form the table of options above is compared with the status quo so as to identify that option which is best able to meet the regulatory objective.

#### Concept Review option

This option may be better than the status quo in respect of both allocative and dynamic efficiency by virtue of having tightened the ESP criteria. It is also superior in respect of the security of supply, risk management, and resilience criteria insofar as it would be expected to reduce the volumes of gas allocated to higher-priority curtailment bands.

However, and as discussed earlier in this section, the Band 5a and 5b criteria appear to be ill-defined and this would appear to limit the increase in efficiency relative to the status quo.

#### Concept Review option – as amended by Gas Industry Co

By definitively narrowing the criteria, and thereby reducing the volume of gas consumption that would otherwise be placed in Band 5, this option:

- promotes allocative efficiency by restoring loads to bands 3 and 4 that exhibit lower value-added per GJ;
- is expected to promote dynamic efficiency and resilience by encouraging those Band 3 and 4 consumers to consider the relative merits of alternatives (be that dual-fuelling, stockpiling, etc.);
- takes a cautious approach to risk management by limiting the number and volume of gas users in Band 5; and
- is expected to provide a net increase in security of supply relative to the status quo.

#### Critical care only

This option results in the narrowest definition for ESPs and, therefore, would score most highly on the criteria of security of supply, risk management, and resilience. However, this option scores less well than the amended Concept Review option on allocative and dynamic efficiency, since parties that would be designated Band 5 ESPs under the amended Concept Review option (and who have relatively high social cost when they are curtailed) would have no special status under the critical care only option.

Accordingly, Gas Industry Co considers the amended Concept Review option best meets the criteria and proposes that the CCM Regulations be amended in this way.

*Q7: Do you agree with the option evaluation set out above? If not, please explain why.*

## 6.3 Minimum load consumers

The MLC provision currently in the CCM Regulations provides for consumers who require a minimal amount of gas during a critical contingency in order to:

- avoid serious damage to plant; or
- mitigate serious environmental damage

while undertaking an orderly shutdown of plant in the shortest time possible.

According to the gas registry, there are ten ICPs with MLC designations (as a comparison, there are over 200 ICPs in curtailment Band 3 or above that would satisfy the consumption threshold of 10TJ for an MLC designation).

With the proposed tightening of the eligibility criteria for ESPs, it may be that a greater number of businesses will seek MLC status. In that regard, it may be appropriate to broaden the MLC criteria, beyond the two categories currently in the CCM Regulations, in order to address a wider range of curtailment concerns.

### Categories of eligibility

#### Health and safety

As discussed in section 6.6, the HSEA requires gas users to take 'all practicable steps' to ensure that their activities do not harm their employees, contractors or other people. Relying on continued gas supply is not a practicable step, since the loss of gas supply is a real possibility, either through a critical contingency or through a more localised gas supply problem. Accordingly, the HSEA duty to *'take all practicable steps to ensure the safety of employees while at work'* should include plans to avoid health and safety risks associated with a gas supply outage.

Consistent with the above, it is conceivable that an orderly shutdown of plant would provide one way of mitigating risks to health and safety. While such a provision could not be relied on completely – as MLC-designates are still subject to full curtailment – it may be appropriate in some circumstances. For example, a plant may consider localised gas storage as a means of managing an orderly shutdown and an MLC designation could assist by reducing the likely size of the storage vessel.

#### Animal welfare

One issue that was raised during the Maui Pipeline outage was the treatment of animals at abattoirs. Abattoirs typically have only limited space available for holding animals before they are slaughtered, and they are not equipped to house the animals for an extended length of time; for example, they do not have facilities for feeding and watering the animals. The prospect of a gas outage, where animals are not able to be slaughtered, therefore raises animal welfare concerns.

Animal welfare is not a criterion for MLC designation at the moment, but there may be merit in revising the criteria to allow such processors to be designated as MLCs. In this case, the MLC classification might allow meat processors to process animals already on site, but not to accept any further animals onto the premises until after the critical contingency is terminated. As with all critical contingency designations, MLCs would still need to be prepared to curtail gas usage fully if called to do so by the Critical Contingency Operator.

**Completion of critical processing**

Inherent in the current MLC criteria is the assumption that the social cost of serious damage to plant or serious environmental damage would be greater than the social value of complete curtailment, at least as long as Band 4 is allowed to draw gas. But there may be situations where curtailment may risk neither plant nor environmental damage, yet still cause significant costs. This could happen, for instance, if high-value materials were being processed (and the value would be lost if processing were to stop suddenly); or if stopping processing would incur significant costs in disposing of partially processed material and readying the plant to restart production.

To the extent that such costs of interruption of production could happen, the risk of an industrial gas consumer incurring those costs could be mitigated if the criteria for MLC were expanded to include such circumstances.

**Power stations**

Another issue that has been brought to Gas Industry Co's attention is the fact that, during a critical contingency when gas thermal electricity generators are required to curtail, there may be a need to start other generation units in order to support the electricity system. This situation is a bit different from other MLCs since, instead of following a ramp-down schedule, these users would require additional gas after a curtailment was called. There are two specific examples: Huntly Power Station and Southdown. Huntly Power Station can run on coal – and provide a significant amount of power to the electricity grid – but it requires an amount of gas, either to effect the switch from running on gas to running on coal, or to warm up units that are not running. Southdown can provide voltage support without consuming gas – but again needs a quantity of gas to get it running and synchronised to the electricity grid.

The question is whether – and how – to provide for these cases within the CCM Regulations. At the moment, r53(2)(a) specifically provides for the CCO to direct curtailment of only a subset of load within a curtailment band for the purpose of enabling gas-fired electricity generation to assist with voltage support or electricity system stability. However, this regulation does not permit generation units to take an additional quantity of gas, for a defined time, as discussed above. One option is to specifically cater for them within the construct of the MLC designations and allow approved electricity generators to have a curtailment profile that includes a defined increase in gas consumption for a limited period. Another option would be for such electricity generators to have a special designation that would allow them to consume gas for the purposes of electricity grid support – but only when given approval to do so by the CCO, and provided that the CCO has consulted with the electricity system operator.

*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.*

*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?*

### Consumption thresholds of eligibility

At the moment, the CCM Regulations allow gas consumers using more than 2 TJ per year to apply for ESP status, but MLC applicants need to consume more than 10 TJ per year. It may be that this difference in consumption thresholds has contributed to the preference for ESP status noted in the Concept Review. It may therefore be worth exploring different consumption volume thresholds associated with MLC designation.

Consumers designated as MLCs are required to curtail in full when the CCO calls for demand curtailment of Band 4 consumers. Band 4 consumers are defined as those who use more than 2TJ per year but less than 10TJ per year. Implicit in this construct is the assumption that a MLC will use gas at a Band 4 rate in its plant shutdown. But what if a consumer uses less gas than that? If an MLC could scale back to a gas consumption rate commensurate with a Band 6 consumer, then perhaps it should be entitled to be fully curtailed with Band 6 consumers.

It is possible that this construct could work equally well with gas consumers using over 10TJ per year – those in curtailment bands 3 and above – as well as those who use more than 2 TJ but less than 10 TJ in a year – those in Band 4. The largest consumers could apply for MLC status, which would allow them to follow a set shutdown schedule and fully curtail at either Band 4 or Band 6, depending on the profile of the shutdown schedule. Band 4 MLCs likewise would follow a set shutdown schedule and be required to curtail fully at Band 6.

It is important to be able to monitor MLCs' compliance with curtailment instructions and their designated shut-down profiles, so the need for MLCs to have time of use meters would remain. Gas consumers using more than 10 TJ per year are already required to have ToU meters (through the Gas (Downstream Reconciliation) Rules 2008). Gas Industry Co proposes to add an explicit requirement for MLC applicants to have ToU meters installed, to ensure that all MLCs can be monitored appropriately in the event of a critical contingency.

**Options for broader MLC criteria**

| Option | Description |
|---|---|
| **Status quo** | The existing arrangement under the CCM Regulations<br>• establish the MLC designation based on avoiding serious damage to plant and mitigating serious damage to the environment;<br>• allow gas users with annual consumption greater than 10 TJ/annum to apply to be an MLC;<br>• require MLCs to follow a designated shutdown schedule when their band is curtailed, and to curtail fully when Band 4 is curtailed. |
| **Broader criteria including power stations** | As well as the existing criteria in r45(1), add new criteria that provide for:<br>• management of health and safety concerns<br>• animal welfare at sites such as abattoirs, but limited to processing stock that has already been unloaded on the premises;<br>• designated power stations to use a defined quantity of gas for a limited period to allow dual-fuel sites to switch to an alternate fuel and to start plant that can provide voltage support<br>• completion of critical processing<br>• Eligibility threshold of 2 TJ per year<br>• Requirement to have a ToU meter<br>• Requirement to curtail fully at either Band 4 or Band 6 |
| **Broader criteria, but separate category for power stations** | As well as the existing criteria in r45(1), add new criteria that provide for:<br>• management of health and safety concerns<br>• animal welfare at sites such as abattoirs, but limited to processing stock that has already been unloaded on the premises;<br>• completion of critical processing<br>• Eligibility threshold of 2 TJ per year<br>• Requirement to have a ToU meter<br>• Requirement to curtail fully at either Band 4 or Band 6<br>• A new designation process for power stations that require additional gas after a critical contingency is called. Power stations would apply for designation, but would only be able to follow their start-up profile if directed to do so by the CCO and provided that the CCO has consulted with the electricity system operator. |

**Evaluation of options**

The criteria of security of supply and risk management are less important to the evaluation of broadening MLC criteria as:

- an MLC has to provide a profile to reduce load as soon as possible;
- an MLC must be ready to curtail in full when the relevant (higher priority) band is curtailed; and
- the CCO controls the timing of full curtailment.

As a result, it is considered that there are only marginal differences between the options for these criteria.

In respect of health and safety concerns, this is likely to be allocatively efficient based on the high social value attributed to human life. The requirement for MLC-designates in this category to have a contingency plan to cope with full loss of gas supply means that this option does not reduce dynamic efficiency significantly relative to the status quo. Indeed, the requirements of the HSEA are such that it would be considered to have a greater influence on parties' thinking about resilience planning and likely be a positive influence on dynamic efficiency.

Extension of the MLC categories to allow consideration of animal welfare at sites such as abattoirs is regarded as being positive for allocative efficiency on the strength of the social good associated with minimising the suffering of animals. It is also possible that it would be positive for dynamic efficiency as it reduces the likelihood of resilience investments being made, to address this short-term issue, in situations where the resilience investment does not make sense as a commercial investment.

Providing the ability for gas to be taken for either fuel-switching or voltage support is allocatively efficient taking into account that, at the very least, it allows for the dispatch of the lowest-cost thermal generator in the first case and may avoid procurement of more expensive ancillary services in the second. It is also expected to exhibit greater dynamic efficiency relative to the status quo by deferring the need for alternative options. This option is also improved, with regard to risk management and security of supply, in its modified form, i.e. where the electricity system operator confirms to the CCO that it requests the service.

Allowing for completion of critical processing is very similar to the existing MLC criteria – it allows for a plant to, as soon as possible, complete a batch to the stage where the plant can be shut down without disproportionate cost. This is considered likely to be allocatively efficient.

The remaining consideration is whether reducing the eligibility threshold introduces any further factors to be considered. Broadly, the same analysis would seem to apply to the various new categories irrespective of the size of the plant. However, as the size threshold is lowered, the number of potentially eligible sites increases and that could increase the relevance of the risk management and security of supply criteria. Similarly, keeping on a subset of Band 4 customers (albeit at greatly reduced consumption levels) could increase the risk of the CCO needing to curtail a higher priority band or bands. If that were the case then that could call into question whether allowing those additional loads to be designated as MLCs was allocatively efficient.

On balance, and provided that the criteria remain tight, the shut-down profiles are of short duration, and the level of 'minimal load' is but a fraction of normal usage, Gas Industry Co proposes broadening the MLC criteria, including lowering the eligibility threshold.

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

## Process for designating ESPs and MLCs

A number of issues were raised in the Concept Review and in submissions with respect to the process for designating ESPs and MLCs. In this section, we discuss who should have the responsibility for approving applications, what those applications should contain, and what form the approval should take.

### Approval organisation

At the moment, it is retailers who assess applications for ESPs and MLCs. In practice, this arrangement has led to inconsistent designations between retailers and among customers, as retailers may face commercial pressures in determining applications. The Concept Review therefore recommended that responsibility for approving designation applications should be transferred to an independent body. Submitters agreed with the recommendation, many of them suggesting that Gas Industry Co could fulfil the role.

Gas Industry Co agrees that there is merit in having a single, independent body do the approving, as it would promote consistency of treatment among applications, and the decision making would not be influenced by commercial considerations. As the industry body and the organisation that administers the CCM Regulations, Gas Industry Co would seem to be best placed to undertake this role.

### Application process

Consistent with the need to tighten the criteria for ESP designation, Gas Industry Co proposes to amend the CCM Regulations so as to structure an application process that will ensure that applications for ESP or MLC status are analysed and assessed in a consistent fashion. The Concept Review recommended that applications for ESP should contain information on the essential nature of the service, any back-up supply arrangements in place or the reasons why back-up supply arrangements are not feasible, the minimum supply necessary to maintain the service, and emergency arrangements for coping with full loss of supply (including emergency stores and other back-up arrangements necessary to survive a gas outage). The purpose of this information is to enable a robust assessment of the 'essentialness' of applicants' gas use, and the level of consumption necessary for that essential use. It will also ensure that applicants have reasonably and prudently considered their backup arrangements and that they understand that designation is not a guarantee of uninterrupted gas supply.

Applications for MLCs would similarly need to contain information on why the designation was sought and contingency arrangements in place. They would also need to document the shutdown schedule being sought.

Although retailers will no longer have the responsibility of determining ESP and MLC applications, Gas Industry Co considers that retailers are best placed to vet their customers' applications to ensure that they contain all of the necessary information, before passing them to Gas Industry Co for consideration.

**Designations are per ICP**

There has been some confusion amongst stakeholders as to how to interpret the size criteria for ESP designation: whether the designation applies to all sites owned by a single organisation, or whether the designation is on a per-ICP basis. Gas Industry Co considers that ESP and MLC designations must be on a per-ICP basis, as the level of granularity is important for the effective management of critical contingencies. That is, each site must be evaluated separately to determine if it satisfies the criteria for ESP or MLC designation. Gas Industry Co proposes that the definitions of ESPs and MLC be changed to include the term 'consumer installation' instead of 'consumer.' This change is considered minor and technical, since it aligns these designations with the criteria for curtailment bands.

**Form of approval**

During a critical contingency, when ESPs are allowed to take gas, but other similarly-sized gas consumers are curtailed, gas usage by ESPs should be the minimum amount possible. That is, if bands 0 through 4 have been curtailed, but Band 5 is on, then consumption by Band 5 consumers should be at the minimum. Similarly, if bands 0 to 6 are curtailed, then Band 7's consumption should be at its minimum. Gas Industry Co considers that designation of minimum supply volumes should be part of the process of ESP approvals.

Similarly, the designation of an MLC would lead to a shutdown schedule that those customers would be expected to adhere to in the event of a critical contingency. If Band 4 is curtailed, then MLCs are expected to curtail their demand fully.

**Review of designations**

Some stakeholders have suggested that it would be prudent to allow for a process by which ESP and MLC designations are reviewed. Gas Industry Co agrees that such a process would be prudent to ensure that designations remain current and based on the most recent information possible. Gas Industry Co therefore proposes that designations expire after a period of two years, after which time the consumer will need to reapply.

Holders of ESP and MLC designations will also be required to inform Gas Industry Co if their situation changes materially such that they may no longer satisfy the criteria for the designations they hold. The offence provision discussed in section 11 would apply if such notification was not provided or if a gas consumer is found to rely upon an ESP or MLC designation for which it no longer qualifies.

| Option | Description |
|---|---|
| **Status quo** | The existing arrangement under the CCM Regulations:<br>• require retailers to process applications from their customers and approve or decline applications;<br>• where an MLC applicant is successful, the retailer and applicant must agree on:<br>  ○ the absolute minimum level of gas supply required to avoid/mitigate damage; and<br>  ○ the time required for an orderly and complete shutdown; and<br>• provide for an applicant to dispute a retailer's decision and refer it to Gas Industry Co for review. |
| **Independent assessor option** | The independent assessor option includes:<br>• moving the approval process away from retailers to an independent body;<br>• requiring retailers to collect and check applications and to pass them on to Gas Industry Co, who will forward them to an independent assessor for determination;<br>• requiring ESP applicants to identify the level of supply that would be necessary to maintain only the essential service; and<br>• where an MLC applicant is successful, the independent assessor and applicant must agree on:<br>  ○ the absolute minimum level of gas supply required to avoid/mitigate damage; and<br>  ○ the time required for an orderly and complete shutdown.<br>• designations expire after two years |
| **Gas Industry Co option** | Similar to the above option, but with Gas Industry Co as the designating body:<br>• moving the approval process away from retailers to Gas Industry Co;<br>• requiring retailers to collect and check applications and to pass them on to Gas Industry Co for processing and determination;<br>• requiring ESP applicants to identify the level of supply that would be necessary to maintain only the essential service; and<br>• where an MLC applicant is successful, Gas Industry Co and applicant must agree on:<br>  ○ the absolute minimum level of gas supply required to avoid/mitigate damage; and<br>  ○ the time required for an orderly and complete shutdown.<br>• designations expire after two years; notice required if change of status |

**Evaluation of options**

As discussed above, the key advantages of the alternative options are that they:

- remove the potential conflict of interest from the retailer; and
- ensure that designations are granted on a consistent basis as they are done by one organisation.

With those advantages either of the options is better, across the evaluation criteria, than the status quo. Whilst the same work is involved in processing the applications, it seems likely that having this work performed by one organisation is likely to yield some processing efficiencies. However, Gas

Industry Co proposes the 'Gas Industry Co' option as that avoids the costs associated with setting up and administering a service provider contract.

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

## 6.4 Transitional provisions

Under these proposals, the number of gas consumers currently designated as ESPs would be expected to decrease considerably. It is appropriate that a reasonable transitional period be allowed so that those consumers can make alternative arrangements. Therefore, Gas Industry Co proposes transition arrangements as follows:

- ESP and MLC holders to reapply as soon as possible after the new CCM Regulations come into effect;
- parties who do not meet the revised criteria and whose applications are declined will lost their designations 9 months after the CCM Regulations come into effect; and
- any existing ESP or MLC that fails to reapply will also lose its designation 9 months after the CCM Regulations come into effect.

Nine months has been chosen to allow sufficient time for parties to reapply and, given that the new criteria are unequivocal, it should be clear to applicants in advance whether they are likely to be successful or not.

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

## 6.5 ESP/MLC designations during a critical contingency

The CCM Regulations require retailers to inform all of their customers (who met the size criteria) about the ability to seek ESP and MLC designations. This requirement is designed to ensure that such customers know about the CCM Regulations and have the opportunity to secure the appropriate designation. The number of ESP applications that were received during the Maui Pipeline outage indicates that not all customers were aware of these provisions and were poorly prepared for a critical contingency event. During one of the teleconferences on the Maui Pipeline outage, end users were informed of the existence of ESP designations in particular and invited to approach their retailers. The spate of last-minute applications placed greater pressure on the retailers and may have reflected the perception among gas consumers that such a designation would enable them to access gas to continue their normal business operations.

As outlined in section 6.1, there are a number of gas consumers who currently hold ESP designations but do not provide essential services, many of whom received their designations during the Maui Pipeline outage. This suggests that the arrangements need to be revised to ensure that parties are appropriately designated ahead of time.

In addition, designating ESPs and MLCs ahead of time promotes the following outcomes:

- organisations are provided with information as to the criteria, may apply for ESP or MLC designation, and those who meet the criteria have the clarity of knowing their situation;
- those who are not successful in obtaining a priority designation are then faced with the option of determining the level of resilience appropriate to their situation and are incentivised to take the most efficient actions; and
- the CCO is provided with a clear picture of the make-up of the various contingency bands, can consider the supply/demand imbalance presented by an event, and is then able to direct curtailment with a good degree of confidence that the curtailment will result in stabilisation.

By contrast, retaining flexibility to approve ESPs and MLCs during a critical contingency risks:

- weakening the incentives for parties to invest the necessary time and resources to apply ahead of time; and
- the possibility that some parties may attempt to game the arrangements by neither applying nor making arrangements to be resilient against a gas outage as a way of putting themselves into a difficult state during a contingency event. They would then cite that difficult situation as a justification for an 'on the fly' designation.

Accordingly, the arrangements must be such as to ensure that gas users are suitably informed as to the existence of the CCM Regulations, the likelihood of curtailment (which will vary according to curtailment band and cause of incident), and the criteria for priority designations.

However, it may be important to provide limited flexibility for ESP/MLC designations during an event to address truly unforeseen situations. For example, where a business has taken all reasonable steps to be resilient against a gas outage but, perhaps, their back-up supply has failed (or there has been some other exceptional circumstance), then it would seem reasonable for them to at least be able to apply for priority status.

Accordingly, it is proposed to amend the CCM Regulations to make it clear that:

- retailers must ensure that their customers know (well in advance) of the ESP and MLC categories and the ability to be designated as such; the proposal is to require annual notifications by retailers;
- flexibility to designate ESP and MLC customers during a critical contingency event will be limited to those that have previously applied (and been unsuccessful) but:
    - either circumstances have changed sufficiently that the customer now meets the criteria and designation is now appropriate; or
    - appropriate resilience arrangements were made but, through unforeseeable circumstances, those backup arrangements have failed and the customer meets the necessary criteria.

In this way all of the parties will have strong incentives to establish whether or not they qualify for ESP/MLC status and, if not, take action appropriate to their individual circumstances.

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

## 6.6 Health and Safety

Regulation 47 of the CCM Regulations provides that:

> *No person is required to comply with a provision of this Part [3] to the extent that compliance would unreasonably endanger the life or safety of that person or any other person.*

When recommending a gas governance arrangement, Gas Industry Co must also ensure consistency with the Government's safety regime (s 43ZN of the Gas Act). Accordingly, it is important that the CCM Regulations are consistent with incentives in the HSEA to provide safe workplaces and to mitigate foreseeable health and safety risks.

The Concept Review found that

> There is a risk [regulation 47] is too broad and open ended and that there may not be sufficient sanction available within the [regulatory framework] to ensure that it is used only in exceptional circumstances.

Concept recommended that

> 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.

Gas Industry Co, and most submitters on the Concept Review, considered that there is merit in clarifying that regulation 47 should be interpreted within the context of the requirements of the HSEA to manage identifiable risks and that being instructed to curtail gas use is an identifiable risk.

### Clarifying the context

Gas Industry Co considers the intent of regulation 47 needs to be interpreted in the context of other, primary and secondary, legislation that addresses health and safety in employment.

Under the HSEA, gas users have to take all practicable steps to ensure that their activities do not harm their employees, contractors or other people. Planning for a critical contingency, so that a user will be able to comply with curtailment directions without endangering people, is such a practicable step regardless of the provisions of the CCM Regulations. Indeed, the obligation to take 'all practicable steps' requires that proactive steps be taken, and this threshold is a high one. It has sometimes been described as a requirement that an organisation do 'everything it reasonably can' to prevent harm and would not be satisfied by a gas user defaulting to the option of breaching a curtailment direction as its means of protecting individuals. Indeed, if gas users have complied with their obligations under the HSEA, there should be little need to rely on any 'health and safety defence' provision within the CCM Regulations.

Accordingly, it is proposed that the current, broadly-worded regulation 47 is replaced by a health and safety defence to breaches of curtailment requirements.

It would be a defence to the proposed offence provision of the CCM Regulations (see section 11) if the defendant proves that failure to comply was necessary to prevent or lessen a serious or imminent threat to the health and safety of any person. This defence would be limited to where such a threat to health or safety could not reasonably have been foreseen and mitigated by the defendant so that the conduct that constituted the offence could have been avoided.

Similar provisions are contained in a range of other legislation, including the Resource Management Act 1991, the Hazardous Substances and New Organisms Act 1996, the Crown Minerals Act 1991, the Building Act 2004, the Historic Places Act 1993 and the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012.

It is proposed that there also be an equivalent defence provision for breaches by an 'industry participant' that are alleged under the Compliance Regulations. The Compliance Regulations may also need amending to show how the Investigator/Ruling Panel will consider such defences.

This proposal would provide better incentives for industrial and commercial gas consumers to develop resiliency against gas outages and to take the appropriate steps towards addressing, isolating, and/or mitigating workplace risks.

| Option | Description |
|---|---|
| **Status quo** | To retain existing 'safety' provision which states that no person is required to comply with a provision of this Part [3, for example, a direction to curtail] to the extent that compliance would unreasonably endanger the life or safety of that person or any other person. |
| **Gas Industry Co proposal** | To make a defence to the new offence provision and to any alleged breaches relating to failure to curtail. The defence would be triggered if the failure to comply was necessary to prevent or lessen a serious and imminent threat to the health and safety of any person and that threat could not reasonably have been foreseen and mitigated by the defendant so that the conduct that constituted the offence could have been avoided. |
| **Other proposal** | Same defence as under the Gas Industry Co proposal but without the requirement that threat could not reasonably be foreseen and mitigated. |

**Evaluation**

Relative to the status quo, the Gas Industry Co proposal better meets the efficiency criteria as it strengthens the existing incentives under the HSEA for gas users to undertake the necessary hazards identification and mitigation measures. Put another way, it removes any perverse incentive to 'free ride' while still allowing parties with a genuine need (arising from circumstances that could not reasonably have been foreseen) to protect their human resources. The improvement in incentives embodied in the proposal means that it ranks higher on the risk management and security of supply

criteria. In some circumstances it may also provide a further incentive for a plant owner to consider and pursue resilience options.

The ‘other proposal’ would provide a somewhat broader defence, and a lesser incentive to address foreseeable health and safety risks.

Gas Industry Co considers the ‘Gas Industry Co’ and ‘other proposal’ are both preferable to the status quo, and offer similar benefits.

# 7 Communications

The Concept Review considered the issue of communications and found that many stakeholders felt that significant gaps existed in the first couple of days following declaration of the October 2011 critical contingency:

> *Communications were a significant issue for several stakeholders and in some cases were considered a priority issue for improvement. There were several suggestions that the CCO was not sufficiently resourced to cope with providing effective communications at the same time as managing the contingency, particularly in the early phases.*
>
> *Some stakeholders found the initial curtailment or declaration notices confusing because they received a large number of them from different sources. Some consumers even suggested that they were initially uncertain whether the email notices were legitimate. There was some suggestion that communications to retailers should come directly from the CCO, rather than indirectly via the TSO, to avoid delays in messages being received. However, others considered the TSOs to be the correct party to be delivering directions to retailers, because they need to be aware of directions, manage pipeline pressures throughout networks, and coordinate with the CCO.*[18]

Gas Industry Co has reviewed the communications issued by Vector during the Maui Pipeline outage, and they helpfully illustrate the sorts of messages needed in this sort of event. Generally speaking, communications during a critical contingency fall into two categories: messages about pipeline conditions, including the need to curtail and the amount of demand response provided, and messages about the cause of the asset failure and expected time for repair and reinstatement. This information has been compared against the current limited requirements for communication contained in the CCM Regulations and used to inform the proposals for backstop regulation set out in section 7.4 below. In particular, to meet the purpose of the Regulations, improvements to communications are required in order to:

- increase awareness of the existence of the CCM Regulations and the need for gas users to respond promptly to curtailment directions from their retailers (any such messages to be contextualised to make it clear that such critical contingencies are infrequent/rare events);
- ensure that stakeholders are kept well informed throughout any critical contingency; and

[18] *Review of Gas Critical Contingency Management: Post Maui Pipeline Outage*, Concept Consulting Group, page 23. Available at http://gasindustry.co.nz/sites/default/files/consultations/254/ccm_review_report_-_concept.pdf.

- assign responsibilities to those industry participants who are best-placed to undertake the communications.

## 7.1 Existing arrangements

When a critical contingency happens, there are a number of parties who are notified under the CCM Regulations. The CCO is required[19] to give urgent notice to the following persons that a critical contingency has been declared:

a) the electricity system operator; and

b) the director of civil defence emergency management; and

c) operators of gas storage facilities; and

d) operators of upstream gas production facilities; and

e) the industry body (Gas Industry Co); and

f) the Minister of Energy and the Secretary (Chief Executive of the Ministry of Business, Innovation and Enterprise (MBIE)).

In addition, to the extent that is reasonably practicable in the circumstances, the CCO must ensure that the persons listed above and affected transmission system owners, interconnected parties, retailers, and shippers are kept informed of the status of the critical contingency.

Notification of a critical contingency will also trickle down through curtailment notices issued by the CCO. Curtailment notices are issued to transmission system owners, who in turn pass curtailment instructions to large consumers and retailers, and retailers instruct their affected consumers to curtail.

## 7.2 Improvements required

The CCM Regulations require the CCO to publish notices of declaration and cessation of a critical contingency, as well as notices of load curtailment on the CCO website. However, the CCO website is a section within the OATIS website and the design of that website is not ideal as a communications tool for the general public. In addition, there are problems providing links to documents or notices within that site, and it seems to only function fully with Internet Explorer. These factors combine to suggest that more is needed to ensure easy access to information for those outside of the gas industry.

The CCM Regulations do not explicitly require public notification of the critical contingency or provisions for key stakeholders to be kept informed throughout the event. Gas Industry Co considers that it is important that timely, accurate, and authoritative information be provided when a critical contingency occurs, and it is vital to ensure such messages are readily available to the public in

[19] Regulation 51.

situations where curtailment may extend to higher priority bands. In terms of the purpose of the CCM Regulations *to achieve the effective management of critical gas outages* such information will:

- reinforce compliance with curtailment instructions;
- promote public conservation efforts (if they are required); and
- otherwise promote confidence and clarity in the management of the critical contingency.

The gas industry used to have an informal agreement whereby communications during an incident were handled by the people closest to the source(s) of information. Given that such a system had worked well for some time, it was not considered necessary to codify those arrangements in the CCM Regulations. Experience from the Maui Pipeline outage indicates that model can no longer be relied upon, at least in some cases.

## 7.3 Formalising industry arrangements

Over the past 18 months Gas Industry Co has worked with industry participants to establish a communications protocol that would:

- identify the timetable for, and content of, CCM event communications;
- clarify who will compile and release such information under various scenarios;
- establish the format of such communications (e.g. web-based or via email lists); and
- ensure all stakeholders have ready access to comprehensive and timely information concerning any future critical contingency.

Although the organisations involved in those discussions have agreed in principle that improved communications are desirable, an information protocol has not been agreed among the relevant industry participants.

## 7.4 Backstop regulation

Gas Industry Co considers that it is necessary to propose broadening the communication requirements in the CCM Regulations to specify a base level of information to be provided during a critical contingency event; who the information is to be provided by; and to whom.

The following list proposes the types of information that would be required and the associated mechanisms and timings.

**Following declaration of a critical contingency**

- The CCO and affected asset owner to prepare a reactive holding statement upon the issue of a notice by the CCO of a potential or actual critical contingency. The holding statement is to be copied to Gas Industry Co, the Minister, and MBIE, clearly labelled for 'information only' and 'not for release'.

- The trigger for proactive release of a public statement by the CCO and affected asset owner is within one hour of the earliest of:
  - a curtailment of gas supply to electricity power stations that causes an electricity supply emergency and/or public comment by the electricity system operator; or
  - the curtailment of gas supply to Band 2 consumers or below (i.e.: when gas use constraint instructions are issued to multiple gas users whose businesses are likely to be affected); or
  - the critical contingency otherwise becoming publicly known, including inquiries from news media.

**Regular updates required**

- During the critical contingency, the CCO and the affected asset owner shall each be required to issue three public information updates daily at 9am, 1pm and 5pm, or at such other times and frequency as required by the Minister or Gas Industry Co.
- All public statements issued by the CCO and affected asset owner must be sent by email to a list of stakeholders that will be provided by Gas Industry Co, and published on their respective websites.
- Public information updates to include, but not be limited to, the following information:
  - when the critical contingency event was declared;
  - the cause of the critical contingency event;
  - actions being taken to manage the resulting supply/demand imbalance, including demand curtailment instructions, increased production from other sources to augment supplies, etc.;
  - the extent of the geographic area(s) affected by the reduction in gas supplies;
  - actions being taken to restore normal operations of the affected asset(s);
  - best estimate of time that repairs will take and;
  - expected time when normal supplies will resume (where this is unknown due to insufficient information, a statement to that effect);
  - resumption of normal supplies (when that occurs); and
  - any other information the CCO or the affected asset owner considers appropriate.

When interpreting the above list it should be noted that certain items will apply to the asset owner, others will apply to the CCO and some may apply to both. It is ***not*** intended that the CCO should speak to a party's asset or that an asset owner would be required to provide information on the CCO's management of the critical contingency. The general intent is that the person with the information is best placed to communicate that information more widely:

- Given that the CCO has the best information on the effects of the contingency event on the physical system, it is the best party to provide regular updates on pipeline conditions and the extent of curtailment required (by geographic area and by generic customer types, as curtailment band numbers are meaningless to most stakeholders); and
- Similarly, the owner of the affected asset (whether production station, pipeline, or other associated equipment) is in the best position to provide information on its own assets and the cause of the outage.

This proposed approach reflects the analysis in the Concept Review.

*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.*

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

# 8 Critical contingency imbalances

## 8.1 Background

The purpose of calculating the critical contingency price and critical contingency imbalances (regulations 67 through 81) is to settle the inadvertent trading that occurs among:

- welded parties who have accrued positive or negative imbalances during a critical contingency event;
- shippers whose supply of gas has been interrupted but whose customers continue to draw gas from the transmissions system; and
- shippers who continue to purchase gas from an upstream supplier but whose customers have been curtailed.

The contingency price arrangements provide an incentive to the last group not to curtail their upstream nominations, which would be counterproductive to managing the contingency event. The contingency price/imbalance arrangements also provide incentives for injecting welded parties to increase supplies where possible and for welded parties at delivery points to take no more than their scheduled quantities.

However, these arrangements do not apply if it is determined that the event is a 'regional critical contingency' as defined by regulation 82:

> **82 Price and imbalances provisions do not apply to regional critical contingencies**
>
> (1) In this regulation, a regional critical contingency means a critical contingency where—
>
> (a) there is a substantial reduction to, or total loss of, the supply of gas to a part of the transmission system; and
>
> (b) that part of the transmission system has become isolated from any other significant sources of gas supply.
>
> (2) Regulations 67 to 81 do not apply to a regional critical contingency.

Typically, r82(1) describes a set of circumstances where the issue is a reduction or complete loss of transmission. In such circumstances, the shortage of gas availability downstream is not caused by a shortage of gas upstream but by the inability to deliver the gas that is available. As the contingency imbalance arrangements do not apply, the normal gas balancing arrangements mandated by the Maui Pipeline Operating Code (MPOC) and Vector Transmission Code (VTC) remain in force.

## 8.2 Review of contingency imbalance arrangements

Both the CCO Performance Report and the Concept Review discussed the contingency imbalance arrangements and the designation of a 'regional critical contingency'. The key matters for review are:

- participants seek real-time guidance on whether a critical contingency is a regional critical contingency or not; and
- some participants consider that the distinction of regional critical contingency could be done away with altogether if the contingency imbalance arrangements applied to all critical contingencies.

### Providing guidance on regional critical contingencies

Guidance on the regional status of contingencies had been a discussion topic prior to the Maui Pipeline outage. The Concept Review highlighted some uncertainty amongst industry participants regarding the identification and treatment of regional and non-regional critical contingencies.

Currently, the CCM Regulations do not require the status of a critical contingency to be declared during the event itself. Not only that, but the distinction was thought to be so obvious that the CCM Regulations did not require a particular person to determine whether a critical contingency is regional or not.

The notices published by the CCO previously provided guidance on the status of the event but this was removed in June 2011 due to a risk, identified by Vector in the 'Tuarua' test exercise, that the regional status of a critical contingency may change during an event. The nature of the event in October 2011 (a pipeline break but with a limited secondary supply to the affected areas via the Vector 200 line) allowed for varying interpretations and brought renewed interest from some parties for the determination to be made upfront to remove any uncertainty.

Gas Industry Co considers that it should be a relatively straightforward matter to empower a party to make a determination on whether a critical contingency is a regional critical contingency or not, and this is discussed further in section 9.2.

At the same time it would make sense to either revise the drafting of r82(1) to reduce the current uncertainty or to require the industry body to prepare, consult on, and publish a guideline note detailing possible scenarios and identifying whether they are regional critical contingencies or not. That guideline note would then be used by the party charged with making the determination(s). In that regard, Appendix 2 provides an example of the sort of guideline information that could be published.

A related matter is that a small number of participants consider that the status, once determined, should be fixed for the duration of the critical contingency. Gas Industry Co considers that this is problematic because:

- it is important not to foreclose the application of critical contingency imbalances as they provide valuable incentives for the effective management of critical contingencies; and

- although the cost of generating the data for imbalances and imbalance pricing is not excessive, it would be wasteful to employ those resources where they are not required.

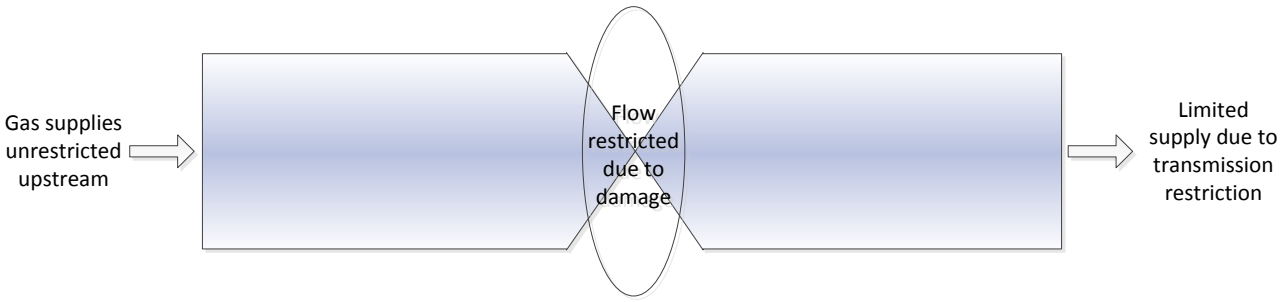
Accordingly, Gas Industry Co considers that there are two options beyond the status quo:

- the first option would simply provide for the status of a critical contingency to be determined and be subject to revision in the light of changing circumstances; and
- the second option would be the same as the first except that any change in the status of a critical contingency (from or to regional critical contingency) would create a boundary for the period used to calculate contingency imbalances.

### Applying critical contingency imbalance arrangements to all critical contingencies

In the original design of the CCM Regulations Gas Industry Co attempted to identify whether there was a mechanism that would improve the incentives for industry participants during a regional critical contingency. The concept that underpins the contingency imbalance arrangements – that certain shippers/welded parties are 'long' gas in the system due to load curtailment, and other shippers/welded parties are 'short' due to their upstream supplier(s) having failed – does not translate readily to the circumstances of a regional critical contingency.

Consider the situation, depicted below, where downstream supplies are limited as a result of a reduced ability to deliver gas from the transmission system. However, no such restriction exists upstream of the damaged section of line.




Customers downstream will be directed to curtail by their retailers (as called for by the CCO). Depending on the precise mix of downstream demand and remaining deliverability there may be some ability to supply certain consumer bands and each retailer will need to estimate its share of the remaining load. Under such a scenario, retailers are not prevented from achieving a balanced position: provided that they can reasonably accurately estimate their share of the residual load then they can arrange to ship the requisite volume. Any difference (mismatch) between the volumes shipped by retailers and consumed by their customers can be settled in the normal way under the balancing and peaking pool arrangements under the VTC. The key reason for the contingency imbalance/pricing arrangements – incentivising parties who are long gas in the system not to reduce their upstream purchases – simply does not exist in the situation depicted above. Accordingly, nothing would be achieved by extending the current contingency imbalance arrangements to cover regional critical contingencies. The question then is whether there is some modified approach that would make sense?

At the time the CCM Regulations were being designed, some parties called for a 'compensation' mechanism in their submissions. In Gas Industry Co's view, that was a flawed concept as, for compensation to be payable, there needs to be one or more payers identified – with a suitable rationale as to why they are paying. Given that retailers provide no guarantee of customers receiving gas and, similarly, transmission owners provide no guarantee of delivery, there would seem to be no basis for a set of arrangements based on the notion of 'compensation' by those involved in the gas supply chain. Moreover, the alternative suggestion that the gas consumers who are not curtailed should compensate those gas consumers who have been curtailed does not make sense. The customers who are in higher priority bands pay higher amounts for their delivered gas. Some of that increase reflects the costs of distribution networks (as larger loads are often connected directly to the transmission system). However, even after allowing for distribution costs, there is a significant increase in cost with reduction in size of consumer. In addition, and as discussed in section 5, those higher priority bands typically exhibit a higher rate of value added per unit of energy, i.e. deferring their curtailment imposes a lower cost to society than if they were curtailed earlier.

### Contingency imbalance information

Regulation 77 requires transmission owners to provide to the industry body the volumes and values of critical contingency imbalances accrued during a non-regional critical contingency. Gas Industry Co then issues invoices and credit notes for these imbalances.

Concern has been raised amongst stakeholders that the imbalance calculation is not transparent, and affected shippers would like the opportunity to view and double-check the imbalance calculations.

There appears to be no reason why contingency imbalances should be considered commercially sensitive, and therefore Gas Industry Co proposes adding a provision into the CCM Regulations that states that contingency imbalances (and the calculations that sit behind them, e.g. the information that allows parties to understand scaling) must be published on the industry body's website when they are received.

## 8.3 Conclusion

Gas Industry Co has been unable to identify an amended set of arrangements that would be applicable in all critical contingencies (both regional and other) and would improve on the existing balancing and peaking pool arrangements (in the case of regional contingencies) and the existing contingency imbalance arrangements (in other critical contingencies).

#### Evaluation

If the regional critical contingency distinction were to be removed then that would be inefficient because:

- following a regional critical contingency, contingency imbalances would be calculated across the transmission system, including areas that were unaffected by the critical contingency;

- the additional time and effort involved, compared with the status quo, would serve no useful purpose as the contingency price and imbalance process does not provide useful incentives for a regional critical contingency.

Accordingly, it is proposed to retain the distinction of regional critical contingencies. However, to address stakeholder concerns about the clarity of the distinction, Gas Industry Co proposes to amend regulation 82:

- to require Gas Industry Co to consult on and publish a set of guidelines that will provide scenarios exemplifying regional and non-regional situations (possible examples are given in Appendix 2);
- to require the CCO to declare whether a CC event is regional or not, with the determination being made based on the closest matching scenario (this is discussed further in section 9.2).

*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?*

# 9 CCO Role

Section 7 discusses proposals with respect to public communications. This section discusses other proposed amendments to the CCO's role.

## 9.1 Calls for public conservation

The curtailment arrangements in the CCM Regulations apply to commercial and industrial users of gas but not to domestic gas consumers. This means that, in the event of a gas critical contingency where curtailment of commercial/industrial load has been insufficient to achieve stabilisation, the only remaining options are:

- for owners of affected gas distribution networks to begin disconnecting customers on the grounds of continuity or safety of the supply and distribution of gas; or
- to make public appeals to remaining gas users to voluntarily stop using gas so as to prevent more serious and protracted loss of gas supply in the local network(s).

This matter was raised in both the CCO Performance Report and the Concept Review. Submitters generally agreed that the CCO should be able to call for public savings.

However, one submitter considered that there was, potentially, a conflict of interest in an industry participant (the CCO) being able to make such a decision. The argument that was presented was as follows:

> The Electricity Authority's review of consumer compensation arrangements in the event of public conservation campaigns is worth noting in this respect. The review came about because 'Some retailers have called for [public conservation campaigns] early in the onset of the dry winter sequence as a means of reducing their exposure to the high spot market prices that prevail in these situations.' This reinforces the point it should be the industry regulator and not a market participant that determines public conservation campaigns.

Gas Industry Co is not persuaded the logic of that argument is applicable in the case of a gas critical contingency. It is almost certainly the case that a loss of gas supply of such severity that load reduction by the domestic sector is required will be associated with a regional critical contingency. In such circumstances the issues of '*exposure to … high … prices*' simply do not exist: there is no contingency price associated with regional critical contingencies, and almost all gas is sold on term contracts with pre-determined prices. Secondly, the electricity market is not exposed to the same problems that the gas market is faced with in respect of losing pressure to downstream networks. As mentioned earlier in this SoP, the electricity system operator has a number of levels of load reduction that can be applied

automatically or manually to maintain short-term supply/demand balance and avoid brownout conditions.

Concerns regarding the use of appeals for public savings can readily be dealt with by restricting such calls to situations where the CCO has already identified the need to curtail Band 6, i.e. only the most serious critical contingencies, ***and*** directed curtailment has been insufficient to stabilise pressures in the (affected part(s) of) the transmission system.

Appeals for public savings are wholly consistent with the regulatory objective and the evaluation criteria in section 3.4.

## 9.2 Determine regional/non-regional status

In Section 8 we considered whether it was possible to do away with the distinction of regional critical contingencies. That analysis concluded that the distinction is still needed.

In the Concept Review, one of the key finding from interviews was that:

> There is a lack of clear understanding about the difference between regional and national contingencies and the application of contingency pricing that needs to be addressed.

This accords with recommendation 15 of the CCO Performance Report:

> Gas Industry Co to lead an industry consultation process to consider the following and any other subsequently identified issues:
>
> a. if the regional status of a critical contingency should be designated when a critical contingency is declared;
>
> b. if a single entity should have the obligation to designate the regional status of the critical contingency;
>
> …

Concept's recommended solution was as follows.

> Retain the current arrangements for distinguishing between regional and national contingencies, but prepare an accessible document that clearly explains the rationale for the distinction. Consider revising the definition to distinguish between a shortage of gas supply ('national') and a shortage of gas transmission ('regional').
>
> Amend the regulations to require the CCO to declare whether a contingency is regional or national as soon as reasonably practicable following the declaration of a contingency. Provide for that declaration to be changed as events unfold.

Submissions agreed that the distinction between the two types of critical contingency was not clear and showed reasonable support for the proposal that the CCO be empowered to make that call.

Appendix 2 provides a series of scenarios with accompanying analysis that identifies regional critical contingencies and those that are not. Gas Industry Co agrees that publication of a guideline document would still be helpful for industry participants.

The remaining question is that of who should make the determination and communicate it to industry participants? That is best answered by asking who has:

- technical knowledge of the transmission system;
- information on the state of the supply and demand situation, i.e. access to real-time data; and
- existing communication channels to industry participants?

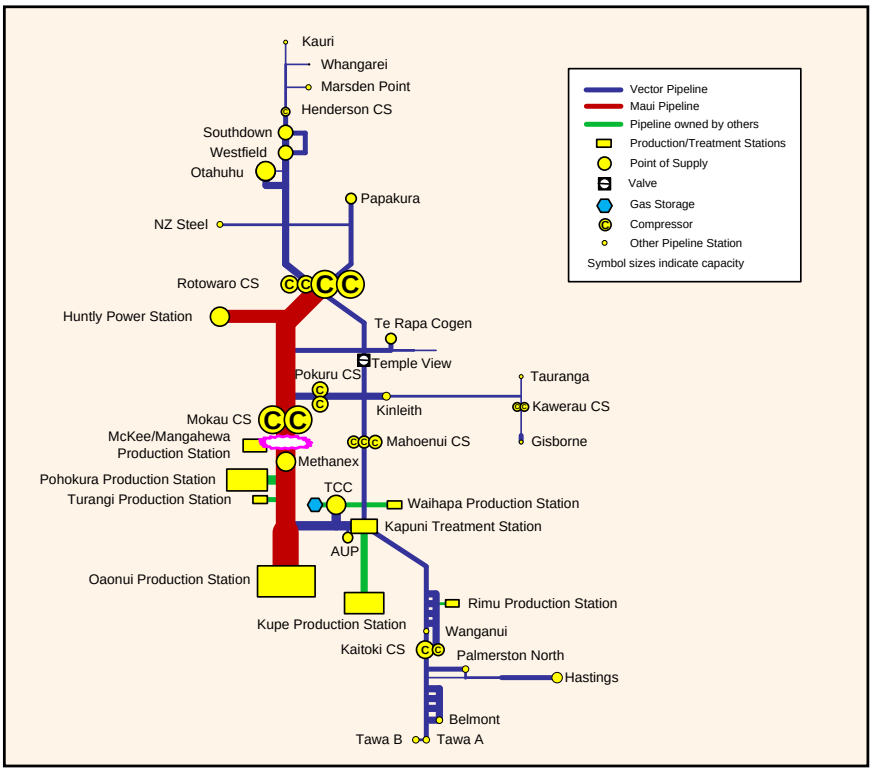
Any of the CCO, TSOs and the System Operator would appear to be candidates. Given that this is a straightforward exercise that would require the party concerned to consider which scenario in the guideline was analogous to the current event. Of those the most suitable candidate is the CCO as that role is most closely associated with the management of gas critical 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?*

## 9.3 Ability to reconfigure networks

The pipeline schematic in Figure 2 indicates the location of the leak in the Maui pipeline, south of the Mokau compressor station.

**Figure 2: Schematic of gas transmission system**




As can be seen from the schematic, once the section of pipeline was isolated between the Pukearuhe main line valve (not shown) and the Mokau compressor station, there would have been no further gas

injected into the northern part of the Maui pipeline. Because the valve at Temple View is normally closed, this meant that:

- the Vector Kapuni-Rotowaro pipeline would continue to provide some gas to the Bay of Plenty system; and
- supply to pipelines north of the Temple View valve would have been wholly dependent on the line pack that remained in the northern section of the Maui pipeline.

During the course of Tuesday, 26 October 2011, Vector opened the valve at Temple View, allowing gas in the Kapuni-Rotowaro pipeline to flow north.

In its review, Concept stated:

> Although this reduced the likelihood of depressurising gas networks north of Taranaki it came at the cost of partially curtailing load in the areas served by the Vector Bay of Plenty pipeline. A further effect of reconfiguring the [Bay of Plenty] pipeline was that, over the ensuing days, the CCO was able to direct restoration of load to selected consumers.

Submissions on the Concept Review considered that the CCO should be able to direct the reconfiguration of transmission in a similar manner where doing so would minimise the costs of a contingency across the economy. One submitter did note that the scope for such reconfiguration of flows is very limited.

This is a minor expansion of the CCO's role and would be consistent with the requirement on the CCO to stabilise pressures in the affected parts of the transmission system. The CCO is also required to receive and consider information from the transmission system owners, so any such decisions would not be being made in a vacuum. In addition, given that reconfiguration may, in some cases be a zero-sum game, such decisions may be unfavourably regarded by a TSO from the perspective of commercial risk. By contrast, making the CCO primarily responsible under the CCM Regulations for such decisions has the effect of insulating the decision-maker from such concerns.

*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 by the affected TSO?*

## 9.4 Over-pressurisation associated with critical contingencies

A number of stakeholders have commented on the situation that arose during the Maui Pipeline outage on the Maui pipeline south of the isolated section of pipe. Pressures in that part of the system rose because the reduced offtakes were not offset by reductions in gas receipts into the pipeline for a time.

Gas Industry Co believes that the commercial arrangements under the transmission codes are adequate to manage such situations, as long as the parties understand who is controlling the relevant part of the transmission system. In short, if the critical contingency is regional, then the CCO has control over only that region of the transmission system, and the unaffected parts of the transmission

system remain under the control of the TSO. TSOs will be better equipped to manage any situations that arise if they have notification as soon as possible about the status of a critical contingency. This matter will be addressed by the proposal in section 9.2 to have the CCO determine whether a critical contingency is regional or non-regional.

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

## 9.5 Requirement to produce performance report

Regulation 65 requires the CCO to prepare and publish a performance report assessing compliance with the Regulations and the overall effectiveness of the critical contingency arrangements. The Concept Review canvasses the possibility that an independent party could prepare the performance report but concludes that the CCO is best placed to conduct this assessment, and most submitters agreed.

Gas Industry Co also considers that the CCO is best placed to assess how well the critical contingency arrangements managed the particular circumstances of a critical contingency event. For an independent party to undertake this function, they would need to shadow the CCO for the duration of the incident, including being present at all of the operational meetings the CCO attends. In addition, the independent assessor is unlikely to have the detailed knowledge of the transmission system that the CCO holds, and so will likely need to ask for explanation and clarification of the actions that the CCO does and does not take during the event. Such an arrangement would raise three significant concerns: the first is that the presence of the independent assessor, and the need to explain the rationale behind the CCO's actions during a critical contingency, may prove to be a distraction to the CCO precisely at the time when the CCO needs to be focussed on managing the event at hand. Secondly, the time to produce the report would be considerably longer because the assessor would need to obtain information that the CCO already has to hand. The third concern is the costs that using such an independent assessor would incur, costs that ultimately would be borne by gas consumers.

Given that the CCO seems best placed to assess the efficacy of the contingency arrangements, the fact that stakeholders have not raised concerns about the reporting arrangements, and the difficulty of having the assessment done by an independent party, Gas Industry Co considers that there is no reason to change the requirement that the CCO prepares the performance report. Still, Gas Industry Co is conscious that residual concerns may remain with the reporting arrangements. The CCO Performance Report, in particular, cites concerns regarding the lack of transparency about the CCO assessing its own actions, and the Concept Review raises the possibility that such arrangements could lead to conflicting incentives.

Gas Industry Co proposes a number of amendments to ameliorate these concerns.

#### Publication of submissions on draft performance reports

Regulation 65(2) requires the CCO to consult with affected transmission system owners and other parties in preparing a performance report, but there is no detail about how the consultation should be

undertaken. Gas Industry Co proposes an amendment that would require the CCO to publish a draft of its performance report for public comment, to receive submissions on the draft, and to consider those submissions in preparing the final version of the report. The submissions themselves would be required to be provided to the industry body for publication on their website.

**Ability to audit the performance report**

Gas Industry Co proposes to add an ability to audit the CCO's performance report. In this way, if questions are raised about the information the report contains, the industry body will have the ability to appoint an auditor to assess the content of that report. Gas Industry Co envisages that the provision will be similar to that included in the Downstream Reconciliation Rules, in that the auditor will be able to request information from a range of parties in order to conduct the audit. The draft audit report will be provided for comment to the CCO and other interested parties, and the final report would be published on the industry body's website.

Making submissions on draft reports public and having the ability to audit performance reports will, in Gas industry Co's opinion, address the problems with the lack of transparency highlighted in the CCO Performance Report.

**Content of the performance report**

Regulation 65 specifies four functions that a performance report should perform:

1. assess the CCO's and transmission system owners' compliance with the CCM regulations;
2. assess the effectiveness of the critical contingency arrangements;
3. assess the extent to which the critical contingency arrangements achieve the purpose of the CCM Regulations;
4. identify any amendments to the arrangements that would better achieve the purpose of the CCM Regulations.

Of these four functions, Gas Industry Co considers that it is the latter three that are the most useful in a performance report. It is important that the wisdom and experience gained through each critical contingency event can be captured and used to improve the operation of the arrangement in future events. Contingency management plans and other arrangements generally are put in place in the expectation of how a critical contingency might unfold; it is during an actual event that the plans are tested and possible improvements identified. Contingency planning is therefore a process of continual improvement, where experience from an event informs future planning. The CCO's performance report is a crucial part of this process.

Less important, from Gas Industry Co's perspective, is the existing requirement that the CCO include in a performance report an assessment of its own and transmission system operators' compliance with the CCM Regulations. Compliance with the arrangements is of course important, but is perhaps peripheral in the context of striving to capture improvements for future contingency planning.

Further, it seems that the requirement for the CCO to undertake a self-assessment of compliance can in practice overshadow the more important aspects of the performance report. There is also the issue touched on by the Concept Review that having the CCO undertake self-assessment creates conflicting incentives. Gas Industry Co therefore proposes deleting the requirement that the performance report should include an assessment of compliance with the CCM Regulations. The CCO would still be bound by the reporting obligations under the Compliance Regulations, which require the CCO to notify the market administrator of any breach that it believes, on reasonable grounds, has occurred. This obligation would cover breaches by both the CCO and the transmission system operators.

**Other reporting requirements**

The CCO Performance Report recommended that the CCM Regulations be clarified to specify to whom the performance report should be addressed. Gas Industry Co proposes that the drafting be amended to specify that it is the industry body who receives the report.

The timing of the preparation of performance reports is another issue that has been raised in light of experience with the Maui Pipeline outage. The CCO Performance Report sought to extend the timetable for preparation of performance reports for more events of greater duration and scale. As the CCM Regulations already allow for an alternative timetable to be agreed between the CCO and the industry body, Gas Industry Co does not consider that an amendment is warranted.

*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.*

## 9.6 Information on scheduled outages

Outages of production stations, transmission assets, and large consumers can have an effect on the security of the gas transmission system in two ways: they can precipitate (or mitigate, in the case of large consumers) a critical contingency, and they can affect the management of and recovery from a contingency event. If a critical contingency happens to coincide with a scheduled outage, it has implications for how the CCO would manage the contingency event. Further, advance notice of scheduled outages could provide the CCO with valuable information about situations in which the transmission system might be vulnerable to other outages.

This issue has been raised with Gas Industry Co by several parties. Gas Industry Co is aware that the CCO has collected information on scheduled outages on a voluntary basis, but such information has not always been consistently sought or given.

Gas Industry Co considers there would be merit in requiring the CCO to collect information on outages scheduled for the 12 months following the request for production stations, transmission assets, and large consumers on a quarterly basis from industry participants. In turn, those industry participants would be obliged to provide the best available information on its tentative, planned, and

confirmed outages within 20 business days of the CCO's request. The CCO would be required to collate and publish the information on its website.

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

## 9.7 Granularity of load data

### Background

Retailers and large consumers provide the CCO with load information. In particular, retailers have an obligation under regulation 39 to notify the CCO of the aggregate total annual consumption and the number of consumers per curtailment band per gas gate.

The CCO uses this information in a demand modelling spreadsheet to build a picture of the expected demand on each pipeline. After conversion to standard cubic metres per second, seasonal and daily profiles are applied to the annual information so that flows can be predicted for any given time of the day and for any month of the year. An example model output is shown below. The demand model also incorporates live SCADA data, so that the predicted demand can be verified against actual flows and adjusted if necessary.

**Table 7 Example demand modelling spreadsheet**

| **Pipeline A** | **Curtailment band** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1A | 1B | 2 | 3 | 4 | 5 | 6 | Dom |
| **Gas Gate 1** | | | | 500TJ | | 12TJ | | 30TJ | 2385TJ |
| **Gas Gate 2** | | | | | | 26TJ | 7TJ | 183TJ | 2250TJ |
| **Gas Gate 3** | | | 6000TJ | | | | | | |
| **…** | | | | | 405TJ | 23TJ | 4TJ | 200TJ | 427TJ |
| **Gas Gate x** | | | | | | 347TJ | | 69TJ | 1900TJ |

When a critical contingency event occurs the CCO uses the demand model to estimate the effect of curtailing various bands and or subsets of bands on the system survival time. The CCO makes curtailment decisions based on both the demand modelling results and actual (live) SCADA data.

For contingency events triggered by production station outages it has been sufficient in the past to curtail the power stations only (due to the magnitude of their gas consumption and, therefore, the extra time that their curtailment adds to system survival).

### Recommendation from 2011 CCO Audit Report

An external audit was performed on the CCO function which recommended that the load model could be improved by using a dynamic calculation to take into account changing predicted load. Ultimately the intention is to progress to proprietary modelling software to provide a more robust solution.

### Recommendation from 2012 CCO Performance Report

Recommendation 14 comprised a number of considerations including, '*whether, and how, to include seasonal variations in usage or maximum daily quantity in place of the current approach of using annual consumption*'.

The motivation behind the recommendation in the performance report was probably a situation which occurred in the Maui Pipeline outage whereby an ESP-designated consumer used an amount of gas equivalent to its stated annual load within a couple of days. That issue will already be addressed by virtue of the proposal to require any future ESP approval to include specification of the minimum gas supply required to maintain the essential service, which will be part of the ESP application and approval.

### Experience to date

Experience so far is that most critical contingencies have been dealt with by curtailing bands 1a and 1b only. Due to the magnitude of gas consumption of power stations, their cessation of supply will allow for other users to continue consuming (often without being aware that a critical contingency event has occurred).

Only in more severe (and rare) circumstances is a greater level of curtailment required. In these situations, such as last October, it is vital that accurate information is held about the sites that are curtailed (to calculate the extra survival time afforded by their curtailment) and the sites that are allowed to continue drawing gas (essential service providers, minimal load consumers or consumers in bands not curtailed). Depending on the circumstances, but particularly in regional critical contingencies, the consumption of each individual site in bands 2, 3 and 4 can be a 'make or break' factor.

Larger users have a larger impact on system security, and therefore it is important to know if a flat profile doesn't accurately reflect their consumption pattern. For example, dairy factories have a spring peak, whereas large food processors in the Hawkes Bay have a summer peak. However, where these seasonal loads make a significant contribution to the overall gas gate load, that will be evident in the aggregate gas gate profile.

### Options

A relatively low-cost means of providing additional data to the CCO would be to make use of existing datasets prescribed by the Reconciliation Rules. This would allow historical information to be used to construct seasonal profiles for gas gates and large gas users. Gas Industry Co proposes that access to this information from the allocation agent database would provide a simple, low-cost means of obtaining this information.

*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?*

## 9.8 Notice of potential curtailments

Gas Industry Co has received feedback on the time delay during the October 2011 event between the CCO declaring the critical contingency and the directions to curtail. One suggestion was to consider requiring the CCO to provide advisory information along with the declaration that would indicate the likely extent and location of curtailment. Such information would have no status under the CCM Regulations but would be useful to participants in their planning. Including such a requirement in the CCM Regulations would be challenging to draft, so consideration will be given to this idea in the drafting workshops to be held prior to a recommendation being made.

## 9.9 Future-proofing the service provider role

The CCO is key to the design of the CCM Regulations and regulation 6 prescribes the manner in which the CCO is appointed. The Regulations do not provide adequately for parties other than the incumbent to be appointed, if that was necessary or desirable for any reason. It is accordingly proposed to provide that the industry body is able to appoint any suitable person as the CCO.

For any party other than the relevant gas system operator to be appointed, access would be required to the necessary system data to enable that party to be effective in the role. This can largely be addressed by reviewing and strengthening the information provision requirements of regulation 38 to be able to adapt to changes in technologies and to ensure that the CCO has access to both real-time and historical data.

*Q26: Do you have any comment on the need to ensure that Gas Industry Co is 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?*

# 10 Retailers' roles

There are a number of roles that retailers play during a critical contingency and a number of steps that they can take to ensure that they and their customers are prepared to respond in the event curtailments are required.

## 10.1 Ensuring customers know of ESP/MLC categories

The Concept Review recommended that the CCM Regulations be amended to provide an ongoing obligation on retailers to notify consumers about the possibility of loss of supply and the opportunity for ESP and MLC designations. This recommendation arose from the experience during the Maui Pipeline outage that suggested that some large gas consumers had not contemplated the possibility of load curtailment, as well as from the large group of consumers that applied for ESP status during the event. As outlined earlier in this paper, it is preferable, from an operational point of view, to have arrangements in place before they are needed, so that the focus during a critical contingency event can be on the management of the situation itself.

Regulations 44 and 45 require retailers to inform their customers about the ESP and MLC designations, although the wording of the sections implies a one-time notification, rather than an ongoing obligation. Gas Industry Co proposes amending the CCM Regulations to include a standing requirement for retailers to contact their industrial and commercial customers (everyone except for those categorised as DOM (domestic)) periodically and inform (or remind) them:

- Of the possibility of loss of supply or need to curtail;
- Of the existence of and criteria for ESP and MLC categories;
- That customers who meet the relevant criteria are able to apply for the appropriate designation; and
- That customers who have previously applied but not been approved may apply again if their circumstances have changed and they believe they now meet the criteria.

Such a requirement would provide a means of keeping the CCM arrangements in front of customers and remind them to consider their emergency management arrangements. It is expected that this would materially contribute to those customers being better prepared for future critical contingencies.

Gas Industry Co's preference would be to require this notification on an annual basis, to ensure that the information remains fresh in customers' minds. However, submitters on the Concept Review

suggested other timetables, and Gas Industry Co signalled that the issue of frequency of notification would be raised in this SoP.

| Option | Description |
|---|---|
| **Status quo** | • No ongoing obligation to notify about ESP and MLC status |
| **Gas Industry Co proposal** | • Notification (as spelled out above) on an annual basis |
| **Other option** | • Notification (as spelled out above) every two years |

*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?*

## 10.2 Curtailment arrangements for Band 6

An issue raised in the Concept Review is how best to notify Band 6 customers of the requirement to curtail. Stakeholder feedback on the issue – both after the event and in submissions – noted the difficulty of contacting hundreds or thousands of retail customers in a short timeframe. At the same time, even though Band 6 represents a small proportion of overall demand, if the CCO needs to cut that deep, then it is most likely due to the extended nature and scale of the outage – and that means it is essential to use best endeavours to direct those customers to curtail.

As Gas Industry Co noted in the analysis of submissions, it may be that the way to address this problem is by altering the arrangements that apply to Band 6 so that retailers can make use of communication methods more suited to broadcasting to a large number of customers. At the moment, the CCM Regulations do not cater for contacting large numbers of customers simultaneously. Regulation 56 states that, as soon as reasonably practicable after receiving a direction from a transmission system owner, retailers must give urgent notice to their consumers directing them to curtail demand. Regulation 23 states that an urgent notice may be given orally but should be confirmed in writing by post, fax, or email. Gas Industry Co accepts that these provisions may not be workable for contacting large numbers of customers, such as would be needed if Band 6 were required to curtail.

Therefore, Gas Industry Co proposes to broaden the definitions of 'ordinary notices' and 'urgent notices' in the CCM Regulations to include SMS (text) messages. Communicating with customers through SMS messages offers two major advantages over telephoning customers: it allows contact with many customers at once (since SMSs can be sent in bulk to a list of people), and it can facilitate contact with business owners themselves (rather than an employee), so the contacted person is likely to have the authority within the contacted businesses to cease gas usage.

A related issue is how the requirements of regulation 55 can be met when it comes to Band 6 curtailment. Regulation 55(2)(b) states that retailers must provide regular updates of consumers' compliance with retailers' curtailment directions. The only way to know about customers' compliance is to receive this information from them, and for that, the most expedient way seems to be by telephone. As discussed above, telephoning each Band 6 customer would be challenging from a logistical point of view, so it would make sense to prioritize the customer list by size. Gas Industry Co therefore suggests that consideration be given as to whether there should be a 'best endeavours' obligation for retailers to telephone Band 6 customers in decreasing order of size. Telephone contact would reinforce the curtailment message sent by text and/or email, and it would enable customers to provide feedback on their curtailment, so that retailers in turn can report this information as required by regulation 55.

| Option | Description |
|---|---|
| **Status quo** | • Urgent notices and ordinary notices conveyed (or confirmed) in writing by post, fax, or email. Urgent notices may also be given orally. |
| **Gas Industry Co proposal** | • Definition of urgent and ordinary notices expanded, for the purposes of contacting Band 6, to include SMSs (texts) |
| **Other option** | • Definition of urgent and ordinary notices expanded, for the purposes of contacting Band 6, to include SMSs (texts)<br>• Retailers also required to contact Band 6 customers by telephone in decreasing order of size |

*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.*

## 10.3 Maintaining the load shedding category field in the gas registry

Stakeholder feedback has revealed that a number of parties have concerns about the quality of the data in the load shedding category field of the gas registry. Gas Industry Co shares these concerns. As discussed in the chapter on ESPs, the ESP customer list provided by retailers does not match the ESP list from the registry, and a large proportion of ESPs are apparently ineligible for the status, based on their allocation group.

Similar inconsistencies can be found for other critical contingency bands as well. For example, there are nearly 1600 active contracted ICPs on the registry that are listed as belonging to curtailment bands

0-3 (all of which should have a consumption of greater than 10 TJ per year) – but only 226 of them are in allocation groups 1 or 2 (as they should be, if their consumption is that high). Clearly, either the load shedding category or the allocation group is wrong for the majority of those ICPs.

Good information about customer numbers and customer load is essential for the effective management of critical contingencies. Gas Industry Co considers that shifting the responsibility for populating and maintaining this field to retailers would be the best way to improve the accuracy of the data on the gas registry over time.

Gas Industry Co also considers that audits of this registry field would help to ensure that the data are as accurate as possible. This issue will be pursued as a change to the Switching Rules.

## 10.4 Gas retailer curtailment plans

The Concept Review recommended requiring gas retailers to prepare and maintain up-to-date gas retailer curtailment plans, and there was widespread support in the submissions for this idea.

Gas Industry Co considers that retailer curtailment plans are a sensible way of ensuring that retailers have the appropriate plans in place to prepare for, and respond to, a critical contingency. Such plans would include:

- A list of consumers and the curtailment band and contact details of each (including backup contact details if required; for example, for the plant owner as well as plant manager);
- Evidence that all consumers have been contacted about the possible need to curtail gas demand during a contingency and the possibility of being designated as ESP or MLC;
- How the retailer will go about contacting consumers with curtailment directions within each curtailment band (including training and/or script development for call centre staff needing to contact Band 4 and Band 6 customers);
- How the retailer will monitor compliance with curtailment directions (including the manner of collecting feedback from consumers, monitoring metering data, and conducting site visits);
- How the retailer will report compliance to the transmission system owners;
- Staff training details;
- Communications strategy;
- Process for keeping the plan up to date.

The intention of the retailer curtailment plans is not to impose additional requirements on retailers but rather to ensure that all of the obligations that a retailer has under the CCM Regulations are carefully planned for and carried out in a consistent fashion. In that regard, Gas Industry Co could have the ability to audit retailers against their curtailment plans, either before an event, to make sure that retailers are preparing as they have planned to do; or after a contingency event, to check performance

during the event against retailer plans. In the latter case, an audit might be triggered following a request from the CCO.

A mechanism would be necessary to ensure that retailers were preparing plans as required and that the plans contain all of the required information. There are a number of options in this regard:

1. Retailers could be required to publish their curtailment plans on their websites (omitting commercially sensitive or personal information such as customer lists and contact details). This option would make transparent retailers' preparation and would invite public comparison of the plans

2. Retailers' plans could be approved by an independent body, perhaps Gas Industry Co. This method would have the advantage of ensuring that all of the required content of the plans was included (because incomplete plans would not be approved), but it would also entail higher administrative costs. Plans could also be published under this option.

Gas Industry Co favours the first option.

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

## 10.5 Calls for public conservation

As noted in section 9.1, the CCM Regulations do not permit the CCO to direct curtailment of domestic gas consumers. However, there is nothing stopping either the CCO or retailers from seeking the willing co-operation of domestic consumers to voluntarily reduce their use of gas during a critical contingency.

In a situation where the CCO has directed curtailment of bands 0 through 6 and that has not provided sufficient demand response to stabilise the affected part(s) of the gas system, then it is both sensible and efficient to call upon domestic gas consumers to make voluntary reductions.

In such circumstances it would be wholly appropriate for retailers to lend their voices, whether individually or collectively, to media appeals and/or other modes of communication (email, SMS, social media, and/or website notices).

This is not something that requires any amendment to the CCM Regulations, nor is it an initiative that necessarily requires co-ordination among gas retailers ahead of time. Given that the particular set of circumstances that may arise could be unique, this is probably something that is best left to individual retailers to arrange. That said, there is likely to be value in retailers giving this matter some thought and, perhaps, documenting some basic strategies in the retailer plans discussed in section 10.4.

## 10.6 Receiving and vetting ESP/MLC applications

As outlined in section 6, Gas Industry Co proposes to transfer the responsibility of making ESP and MLC determinations to an independent party and, in line with submissions to the Concept Review, is also proposing to take on that role.

However, given that Gas Industry Co does not have a direct relationship with end users, retailers will continue to have an important role in the application process. Under the proposed change, retailers will receive applications from their customers and ensure they are complete before forwarding them on to Gas Industry Co for evaluation and, where appropriate, approval.

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

# 11 Compliance Issues

## 11.1 Importance of compliance

The CCM Regulations are designed to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply.

As discussed above, there are parts of the CCM Regulations which, if not immediately complied with, threaten the long term supply of gas in New Zealand[20].

During a critical contingency, the CCO must issue directions to transmission system owners that are necessary to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply. The CCO also has obligations to publish a declaration of the critical contingency and give urgent notice to certain persons such as the electricity system operator, operators of upstream gas production facilities and the industry body.

A cascading chain of notifications and obligation then occur. Transmission system owners must comply with directions of the critical contingency operators and issue directions to retailers and large consumers. Retailers and large consumers must comply with those directions and provide the transmission system owner with regular updates of compliance. Retailers then must instruct consumers to curtail demand in accordance with direction from transmission system owner, and consumers must comply with those directions.

If there is any break in the chain of directions or compliance with those directions, then the management system on which the CCM Regulations is based is threatened. It is possible that one person's non-compliance could impact upon the CCO's ability to manage a critical contingency event and cause a long-term gas outage. Therefore it is important that there are processes in place both to incentivise and ensure compliance with the CCM Regulations.

### Compliance during October 2011 critical contingency

On 25 October 2011, the CCO issued demand curtailment directions for all Band 0 – 6 consumers to curtail demand immediately in affected areas. The retailers receiving notification were then required to give urgent notice to their consumers directing the curtailment of demand in accordance with the

[20] For further discussion of this point see section 1.2 "Why are these arrangements needed?"

CCO's directive. The only consumers that were exempt from this curtailment order were domestic consumers, as they do not fall under the jurisdiction of the CCM Regulations.

Overall, good compliance with directions to curtail was observed. In its Incident Report, the CCO made the following comments in relation to compliance with curtailment instructions[21] (emphasis added):

> *General compliance levels by **retailers and large consumers** appeared to be very good. This is borne out by the significantly reduced demand levels observed on the system during the critical contingency.*

and

> *General compliance levels by **consumers** with retailer directions appeared to be very good. This is borne out by the significantly reduced demand levels observed on the system during the critical contingency.*

Gas Industry Co, as the Market Administrator, received notification of three alleged breaches by industry participants, two of which were found to raise material issues. It also received notifications of alleged breaches in respect of a number of sites that appeared to continue to use gas during the period they were subject to curtailment.

## 11.2 Existing measures for ensuring compliance

### Compliance regulations

The Compliance Regulations provide for the monitoring and enforcement of the CCM Regulations. Notification of an alleged breach triggers the compliance process. The CCO is required to notify the Market Administrator of an alleged breach of the CCM Regulations if the CCO believes on reasonable grounds that the any participant has breached the rules. Other persons may also allege breaches.

By way of broad summary, if the Market Administrator determines that an alleged breach raises a material issue, the Market Administrator must refer the matter to an Investigator. If the Investigator is unable to effect a settlement of the alleged breach, the Investigator must refer the alleged breach to the Rulings Panel.

The Compliance Regulations were designed to apply to 'industry participants' as that term is defined in the Gas Act. For the industry participant breaches that were alleged in relation to the Maui Pipeline outage, the Compliance Regulations worked well: the three breaches were alleged and resolved through the Compliance Regime.

In contrast, the effectiveness of the Compliance Regulations when applied to breaches by non-industry participants is much less clear-cut. The jurisdiction of the Compliance Regulations is not at all clear

[21] See the 'Critical Contingency Incident Report' dated 4 November 2011 on the CCO section of the OATIS website – www.oatis.co.nz.

and it is arguable (but not conclusively so) that the Compliance Regulations do not apply to consumers, as the empowering provisions in the Gas Act are primarily designed to cover industry participants.

. Under section 43X of the Gas Act, the Rulings Panel can only make orders in relation to industry participants, and section 43D of the Gas Act defines *industry participants* more narrowly than the term *participant* is defined in the Compliance Regulations. This means that while the Compliance Regulations provide for investigations and settlements of alleged breaches by participants (as defined in those Regulations), the Rulings Panel can make orders only in respect of breaches by industry participants (which, as defined in the Gas Act, is a subset of the Compliance Regulations' participants). A consumer is not an industry participant unless it falls into one of the specified categories of industry participant set out in section 43D of the Act (for example, a consumer is an industry participant if the consumer purchases gas directly from a gas wholesaler). Therefore, only a handful of consumers are also industry participants.

Accordingly, when directed by a retailer to curtail gas demand, there is currently no real consequence for a (non-industry participant) consumer failing, or refusing, to comply. As already noted, any non-compliance with directions in a critical contingency carries with it the potential to compromise effective management of the contingency (and widespread non-compliance would effectively make the CCM Regulations ineffective). It appears that high levels of compliance in October 2011 were supported by a belief amongst consumers that there would be penalties for not curtailing. It is appropriate that such requirements and penalties are put in place.

### Interim injunction

During a critical contingency event, there is an ability to compel participants to comply with the CCM Regulations. The Compliance Regulations enable the industry body to apply to the High Court for the grant of an interim injunction to:

- restrain a participant from doing, or omitting to do, anything that is in breach of the CCM Regulations; or
- require a participant to do, or omit to do, something in accordance with the CCM Regulations.

This provision has never been relied on, but nevertheless it remains an important part of the enforcement process. In contrast to the other enforcement provisions referred to in this paper which relate to non-compliance after the critical contingency, the interim injunction enables prompt action to be taken during the contingency to require compliance, therefore promoting security of supply. This is discussed further on page 90.

## 11.3 Proposed improvements to ensure compliance with CCM Regulations

Gas Industry Co has three proposals for improving the compliance arrangements in relation to the CCM Regulations:

- clarifying that the Compliance Regulations do not apply to consumers;
- moving the interim injunction provision to the CCM Regulations; and
- adding an offence provision to the CCM Regulations.

When implemented together, these proposals will create a more robust regime to incentivise compliance with the CCM Regulations and to allow Gas Industry Co to pursue any breaches that are identified. This will help mitigate the threat to long-term security of supply arising out of a critical contingency event.

### Clarifying the application of Compliance Regulations

It is proposed that the jurisdiction of the Compliance Regulations be clarified by altering the 'participant' definition to remove any reference to consumers that are not also an 'industry participant'. Consumers that do not comply with the CCM Regulations will be liable under a new strict liability offence (described further below). The Compliance Regulations work well for industry participant breaches, so their application to industry participants will remain unchanged.

The Compliance Regulations were set up to provide for the monitoring and enforcement of specified gas governance rules that only apply to industry participants. The CCM Regulations are an exception in that they also place obligations on consumers; that is, on non-industry participants. Therefore, it is appropriate that compliance for non-industry participants be dealt with through a separate mechanism.

As such, it is proposed that the definition of 'participant' in the Compliance Regulations be amended to exclude non-industry participant consumers.

### Moving the interim injunction provision

Under Gas Industry Co's proposal, the interim injunction power will be removed from the Compliance Regulations and inserted into the CCM Regulations. The provision itself will remain unchanged. The shift is to reflect that an interim injunction power may need to be used against a consumer, whereas the Compliance Regulations are only intended to apply to industry participants. In this way, the 'compliance provisions' in the CCM Regulations will unambiguously apply to a wide set of persons, including consumers.

### Offence provision

It is also proposed to insert offence provisions into the CCM Regulations. The Gas Act contemplates that offences may be an appropriate enforcement mechanism. Under section 43T of the Gas Act, regulations may be made providing for offences punishable on summary conviction for a contravention of the regulations and providing for fines not exceeding $20,000 for each offence. This would provide a mechanism to enhance enforcement provisions to cover breaches by non-industry participant consumers. It would also remove the need to guide consumers through the compliance process in the Compliance Regulations, which has limited jurisdiction over consumers and is not designed to accommodate consumer breaches in a timely, effective, and efficient way.

The offence provisions would make a consumer liable if:

- it does not comply with a direction issued by their retailer as soon as is reasonably practicable (regulation 57);
- provides misleading information leading in its application for essential service provider or minimal load consumers;
- as a large consumer, it does not provide information about its total annual consumption as required under regulation 40;
- as a large consumer, it does not comply with directions of a transmission system owner or provide the transmission system owner with regular updates of their directions of the transmission system owner as required under regulation 55; and
- as a holder of an ESP or MLC designation for which it no longer qualifies, does not comply with a curtailment direction issued by their retailer.

Given industry participant breaches are already covered by the Compliance Regulations, it is not intended to make the offence provisions apply to industry participants. The penalty that an industry participant may be subjected to by the Rulings Panel is the same as the maximum fine amount of $20,000. Industry participants may also be subject to additional orders such as paying a sum of compensation.

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

## 11.4 Compliance monitoring

In order for any such compliance provisions to be effective, it would need to be accompanied by a provision that allows Gas Industry Co to assess compliance after the event. This would be best implemented by utilising consumption information supplied through the allocation agent. This option provides a simple, low cost way of improving compliance incentives.

*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?*

## 11.5 TSO compliance

Recommendations 8 and 11 of the CCO Performance Report highlighted the need for TSOs to convey CCO notices to retailers and large consumers in a more timely fashion. Although Gas Industry Co has approved amended Critical Contingency Management Plans that are intended to address this issue, it would be prudent to include performance criteria in the CCM Regulations. Therefore, Gas Industry Co proposes adding a requirement to regulation 54(b) that requires TSOs to relay CCO directions within 30 minutes of receipt.

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

## 11.6 Possible Gas Act changes

Gas Industry Co proposes to make MBIE aware that the Gas Act does not provide for continuing offences (for example section 54(1)(5) of the Gas Act enables regulations to be made prescribing offences punishable by fine not exceeding $50,000 and where the offence is a continuing one, a further amount not exceeding $2,000 a day or part of a day[22]. The problem arises because the more gas a customer uses during a critical contingency, the cheaper a $20,000 fines appears to be expressed on a $/GJ basis. This could create a perverse incentive for a consumer to continue taking gas even though the consumer may be fined under section 43T.

As part of this proposal, Gas Industry Co would support consideration of any increase in level of fines in the Gas Act, and would propose changes to the CCM Regulations to similar effect.

[22] Section 54(1)(5) only permits offences to be prescribed in respect of the contravention of regulations made under section 54. The CCM Regulations were not made under section 54.

# Glossary

| | |
|---|---|
| **ACTC** | Active-Contracted – defines the state of an ICP where there is a contract between a retailer and customer and the gas is able to flow. |
| **CCM Regulations** | Gas Governance (Critical Contingency Management) Regulations 2008, the regulations governing the gas supply system in times when the market is unable to sustain a balanced supply and demand situation. |
| **CCMP** | Critical contingency management plan – under the CCM Regulations, the plan that is required to be prepared by a TSO and approved by Gas Industry Co. |
| **CCO** | The critical contingency operator. |
| **CDEMA** | The Civil Defence Emergency Management Act 2002. |
| **Curtailment** | An instruction, originated by the CCO and relayed by TSOs and retailers, to reduce or completely cease the use of gas by end users. |
| **Curtailment band** | Curtailment bands generally group gas users by annual consumption and this defines the order of curtailment directed by the CCO. Curtailment bands 5 and 7 differ in that they comprise ESPs and may have customers who would otherwise be in different bands. |
| **ESP** | Essential service provider – a consumer that has been granted a designation moving them to a higher-priority curtailment band |
| **Gas Industry Co** | The 'industry body' as defined in Part 4A of the Gas Act. |
| **GJ** | Giga-joule – a measure of energy equivalent to 277.7̇ kWh. |
| **GPS** | The Government Policy Statement on Gas Governance dated April 2008. |
| **HSEA** | Health and Safety in Employment Act 1992 |

| | |
|---|---|
| **ICP** | Installation Control Point – the demarcation point between a customer installation and the distribution network or transmission system that supplies the connection. |
| **INACT** | Inactive-Transitional – denotes the state of an ICP where gas is not able to flow to the consumer installation due to a transitional (non-permanent) disconnection of supply. |
| **LEI** | Lowe Environmental Impact – a consulting firm. |
| **MBIE** | The Ministry of Business, Innovation and Employment. |
| **MCDEM** | The Ministry of Civil Defence Emergency Management. |
| **MED** | The Ministry of Economic Development (now subsumed into MBIE). |
| **MLC** | Minimal load consumer – a consumer that has been granted a designation allowing them, when directed to curtail, to shut down using an agreed consumption profile so as to mitigate plant or environmental damage. |
| **MPOC** | Maui Pipeline Operating Code – the document that contains the multilateral terms for users of the Maui pipeline, i.e. shippers and interconnected parties. |
| **NCDEMP Order** | National Civil Defence Emergency Management Plan Order 2005. |
| **NGOCP** | National Gas Outage Contingency Plan – an arrangement among industry participants that was superseded by the CCM Regulations. |
| **PJ** | Peta-joule – One million GJ or approximately 278 GWh (278 million kWh). |
| **RMA** | Resource Management Act 1991. |
| **SCADA** | Supervisory control and data acquisition - systems that monitor and control industrial processes that exist in the physical world. In the context of this SoP, SCADA refers to the control and monitoring systems used by Vector's Gas Control group at Bell Block in Taranaki. |
| **SMS** | Short message service – a text messaging service allowing the exchange of short text messages between mobile or fixed line phone devices. |
| **SoP** | Statement of Proposal – this document. |
| **TJ** | Tera-joule – One thousand GJ or approximately 278,000 kWh. |

| | |
|---|---|
| **TSO** | Transmission system owner. |
| **VTC** | Vector Transmission Code - the document that contains the multilateral terms for users of the Vector pipeline, i.e. shippers and interconnected parties. |

# Appendix 1: List of questions for submitters

Statement of Proposal - amendments to the Gas Governance (Critical Contingency Management) Regulations 2008

Submission prepared by: (company name and contact)

| QUESTION | | COMMENT |
|---|---|---|
| Q1: | Are there any other matters that should be addressed when considering proposals to amend the CCM Regulations? | |
| Q2: | Do you agree with the Gas Industry Co proposal to combine bands 2 and 3? If not, please provide your reasons. | |
| Q3: | Do you consider that the option of trading gas usage rights during a critical contingency is worth exploring? Please explain your reasoning. | |
| 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? | |
| Q5: | Do you have any comments on the analysis of ESP consumers? | |
| Q6: | Are the proposed categories appropriate? Are there any additional categories that you think should be included? If so, please provide your justification. | |

| QUESTION | | COMMENT |
|---|---|---|
| Q7: | Do you agree with the option evaluation set out above? If not, please explain why. | |
| 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. | |
| 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? | |
| Q11: | Do you agree with the above evaluation of options? If not, please explain why. | |
| Q12: | Do you agree with the above evaluation of options? If not, please give your reasons. | |
| Q13: | Do you agree with the 9-month timeframe for transitioning to the new ESP and MLC arrangements? | |
| Q14: | Do you agree with the tight provisions for designations during a critical contingency event? | |

| QUESTION | | COMMENT |
|---|---|---|
| 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. | |
| 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 by the affected TSO? | |

| QUESTION | | COMMENT |
|---|---|---|
| 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? | |

| QUESTION | | COMMENT |
|---|---|---|
| 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? | |

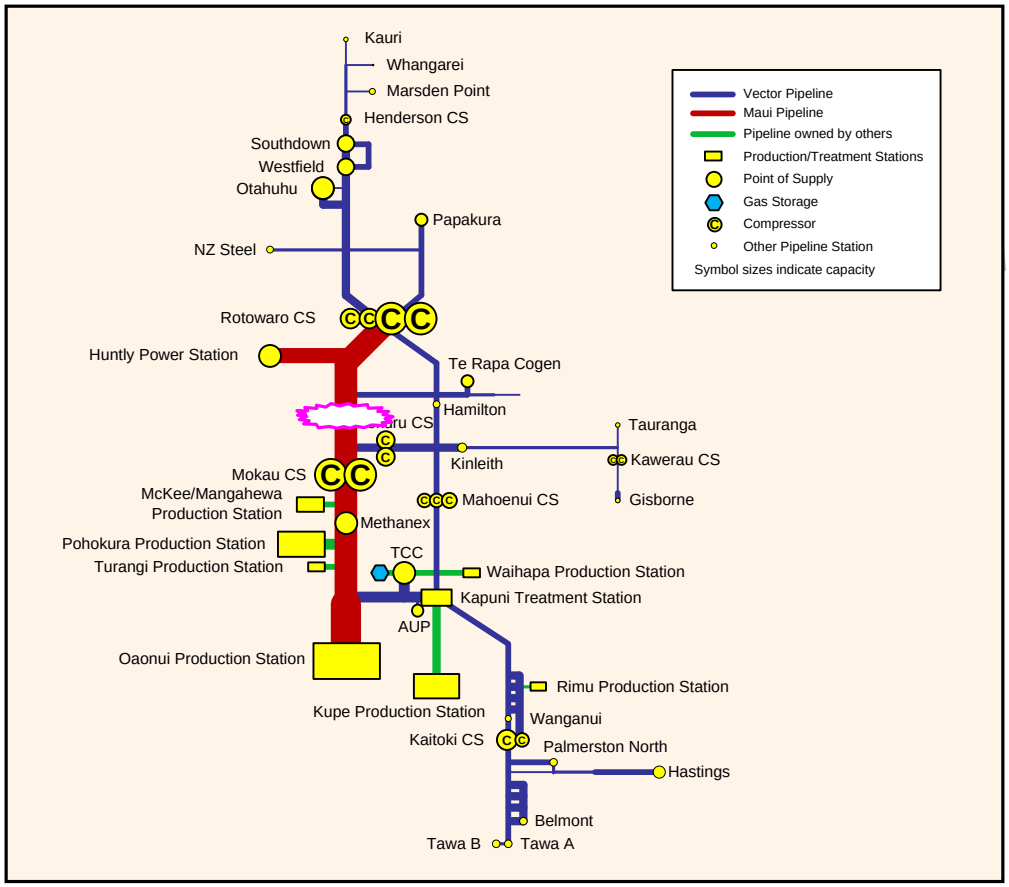
| QUESTION | | COMMENT |
|---|---|---|
| Q33: | Do you agree that using data from the allocation agent is the most expedient way of checking compliance with curtailment directions by ToU-metered customers? If not, what alternative would you suggest, and why? | |
| Q34: | Do you agree with this proposal? If not, please give your reasons. | |

# Appendix 2: Guideline scenarios for regional critical contingencies

This appendix is provided as an example of the sort of information that would be provided to the CCO so as to be able to make a determination of whether a critical contingency is a 'regional critical contingency' or not. The approach is to simplify the decision by providing a number of scenarios that depict critical contingencies and identify those that are regional critical contingencies. The decision then reduces to identifying the closest scenario.

## Scenario 1

**Figure 3: Damage to Maui pipeline north of Mokau**




### Analysis

A regional critical contingency is defined by regulation 82(1) which states:

> In this regulation, a regional critical contingency means a critical contingency where—
>
> (a) there is a substantial reduction to, or total loss of, the supply of gas to a part of the transmission system; and

(b) that part of the transmission system has become isolated from any other significant sources of gas supply.

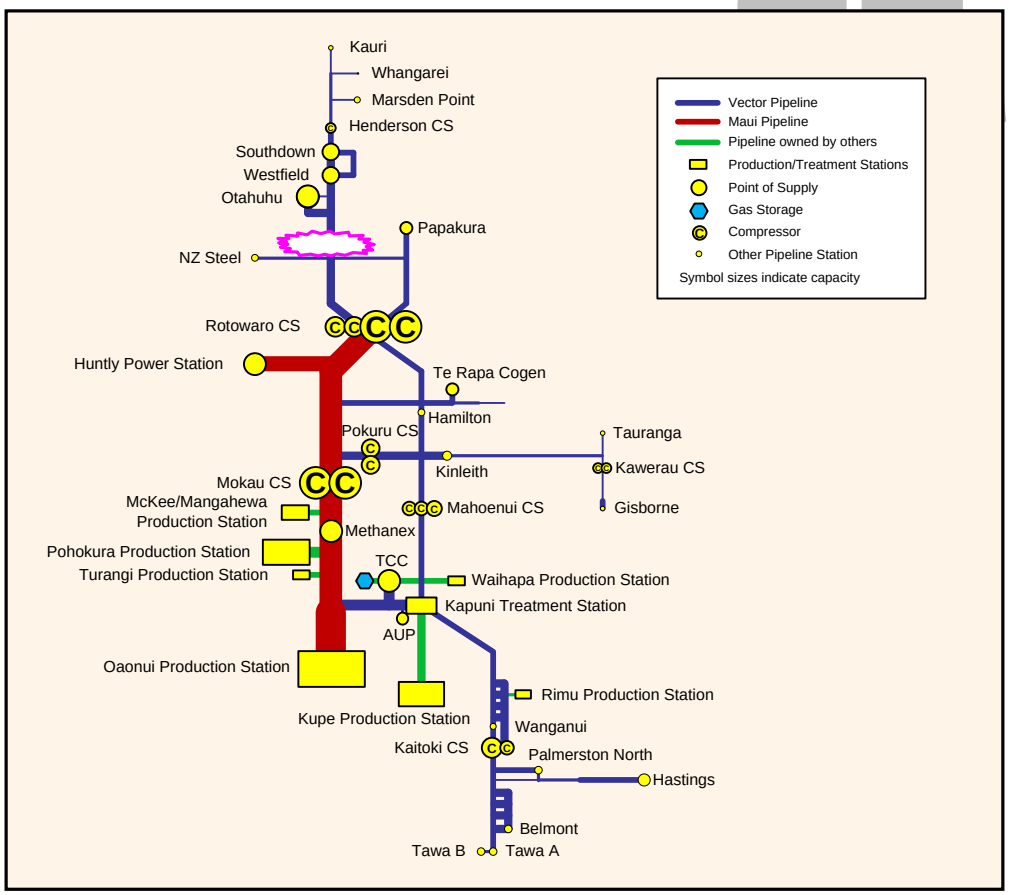
That a section of the Maui pipeline has had to be isolated means that there is no further supply into the section of the pipeline north of Mokau. Thus, there has been a '*substantial reduction or total loss of supply to part of the transmission system*', i.e. part (a) of the definition has been satisfied. The Kapuni to Rotowaro pipeline (the blue pipeline running parallel to the Maui pipeline) could only carry a small fraction of the likely gas demand north of the damage. Thus, the northern/eastern part of the system must therefore be considered to be '*isolated from any other significant sources of gas supply*', i.e. part (b) of the definition has also been satisfied.

Accordingly, scenario 1 is a regional critical contingency.

## Scenario 2

The second scenario depicts a situation in which the Vector North pipeline is damaged just north of the NZ Steel offtake.

**Figure 4: Vector North pipeline damaged north of NZ Steel offtake**



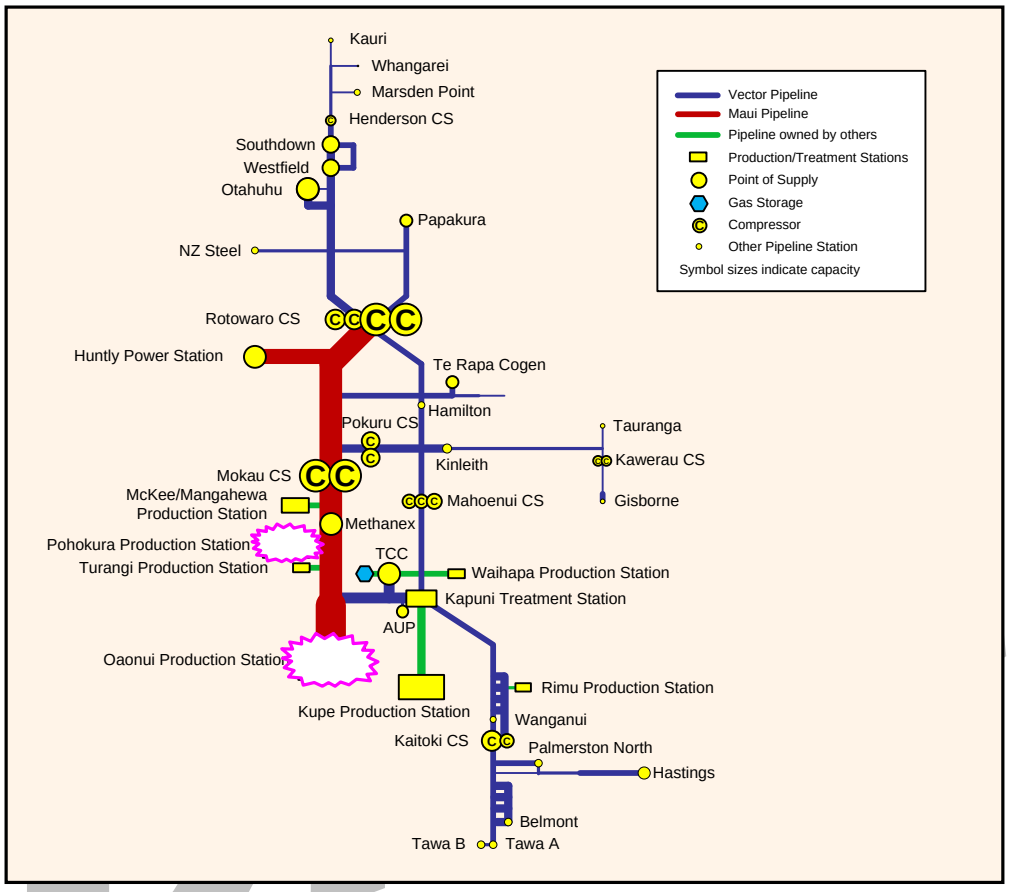

## Analysis

The pipeline north of the damage has completely lost supply and is isolated from any source of supply. It is clear that this is a regional critical contingency.

## Scenario 3

A major earthquake has interrupted the supply of gas from both the Maui and Pohokura fields.

**Figure 5: Maui and Pohokura production ceases due to earthquake**




## Analysis

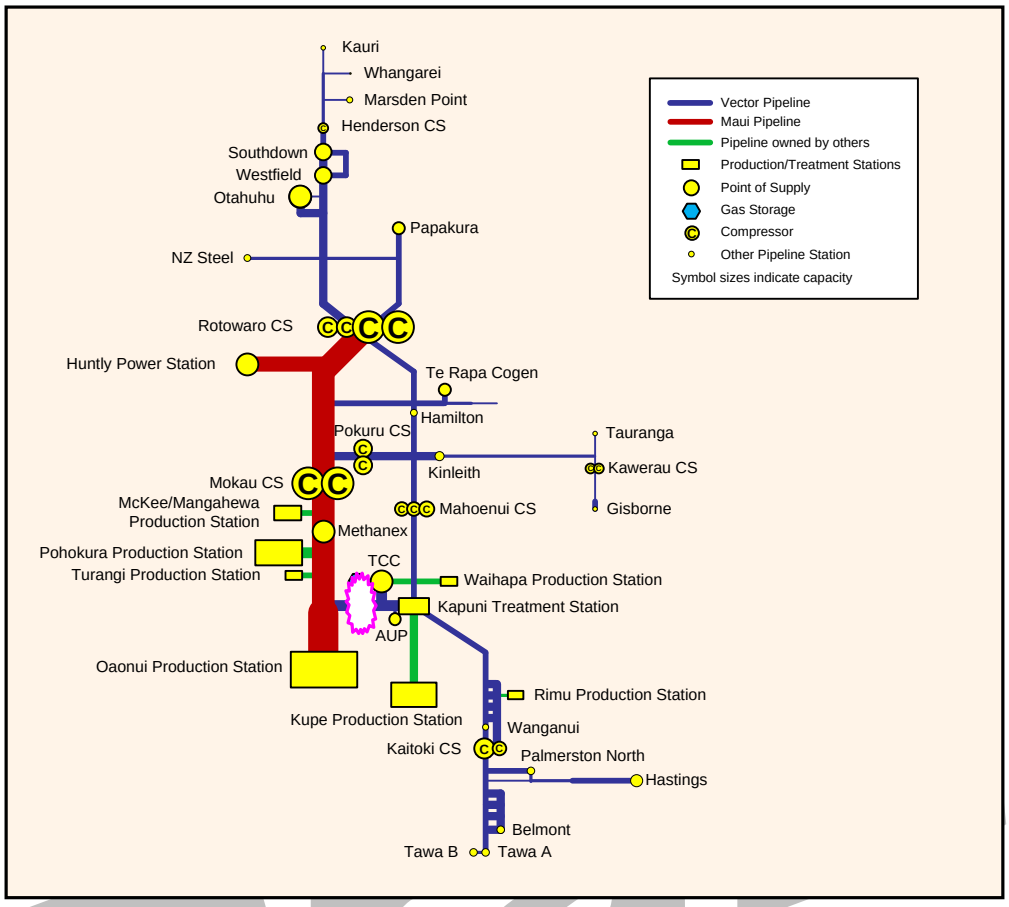
Supply falls to around 25% of demand and the pressures at Methanex and Rotowaro are expected to fall to 30 bar in 3 hours. Curtailment of petrochemical production, electricity generation and major industry throughout North Island is required to stabilise the system.

The transmission system (although undamaged) has suffered a substantial reduction in supply, but is ***not*** isolated from other sources of supply. This is not a regional critical contingency.

## Scenario 4

Vector has detected a defect in the pipe wall of its Frankley Road pipeline during on-line inspection. It has excavated the pipeline to investigate and determined that a repair is necessary. The pipeline will remain isolated and de-pressurised until the repair is effected. This scenario is included because a similar situation caused the CCO to issue a notice of 'Potential Critical Contingency'.

**Figure 6: Frankley Rd pipeline isolated and de-pressurised to allow repairs**




## Analysis

It is likely that the Kupe Production Station and/or Kapuni Production Station will need to reduce supply since there is not sufficient carrying capacity away from Kapuni.

It is unlikely that any critical contingency thresholds will be breached and, therefore, probably no curtailment will be necessary. That said, if load on the system was particularly high and the inability to deliver full supplies from Kupe and Kapuni meant that pressures dropped over time, then that could lead to declaration of a critical contingency.

The transmission system as a whole has not suffered a substantial reduction in supply, and is not isolated from other sources of supply. However, part of the pipeline has been isolated, and it has clearly suffered a reduction in supply.

Overall this would not be a regional critical contingency as no part of the transmission system has '*become isolated from any other significant sources of gas supply*'.