Critical Contingency Management Plan

Prepared in accordance with the
Gas Governance (Critical Contingency Management) Regulations 2008

First Gas Limited
April 2026

NOTE:

Firstgas has developed "Quick Reference Guides" that are designed to set out the key responsibilities, activities and expectations relating to:

- **Retailers,**
- **Large Consumers,**
- **Gas Distributors, and**
- **Gas Producers (including Gas Storage Operators),**

prior to and during a critical contingency event. These short guides provide these stakeholders with a more focused summary of the key processes and information flows for their particular group, including communications with both the TSO and the CCO. The guides can be viewed and downloaded from the "Critical Contingency" section of the "Publications" menu on OATIS (https://www.oatis.co.nz/Ngc.Oatis.UI.Web.Internet/Common/Publications.aspx).

Version Control

Control	Details
Owner	Vaughan Astwood, Systems Operations Manager
Version	15.0
Department	Systems Operations
Effective date	April 2026
Review date	April 2028 (or earlier as required under CCM Regulations)
Preparer	John Blackstock, Senior Commercial Advisor

History

Version	Date	Summary of changes	Preparer
7.0	18/12/2009	First issue for publication	
8.0	09/05/2012	Revised to update the CCOs contact details	
8.1	11/09/2012	Revised to reflect the recommendations made in the December 2011 and April 2012 Performance Reports, and amendment to Critical Contingency Imbalance Methodology	
9.0	25/02/2014	Revised to update TSO and CCO contact details with effect from 1 March 2014	
10.0	14/05/2014	Revised to reflect amendment to the Gas Governance (Critical Contingency Management) Regulations 2008, and the appointment of a new CCO	
10.1	17/12/2014	Minor corrections and amendments made to ensure consistency with the CCO's amended Communications Plan	
10.2	23/05/2016	Adapted to First Gas Limited business branding with minor updates in formatting	Rebecca Pendrigh
10.3	16/06/2016	Revised to reflect the sale of the Maui Pipeline asset to First Gas Limited and consequently removal of references to MDL and other necessary contextual amendments	John Blackstock
11.0	20/02/2017	Revised to become sole CCMP document for all of the Transmission System and to incorporate suggested amendments from previous critical contingency test exercises	John Blackstock
12.0	30/09/2020	Changes drafted in 2018/2019 to accommodate the prospective commencement of the GTAC (including feedback from industry consultation). However, the deferral of GTAC commencement to a date no earlier than 01 October 2021 has necessitated the removal of GTAC-related changes from the CCMP but retention of some "non-GTAC" improvements.	John Blackstock
13.0	30/09/2022	Minor updates to stakeholder list, contact details and template CCO Notices	John Blackstock
14.0	07/03/2024	Removal of Taupo and Broadlands gas gates as pressure threshold points of measurement as a result of urgent amendment to Schedule 1 of the CCM Regulations	John Blackstock
15.0	20/04/2026	Changes to introduce more of a "plain English" feel to core sections, which includes removing some redundant, repetitive or unnecessarily "wordy" text. Some amendments to allow greater flexibility in communications and information flows between stakeholders, by things like removing "pro forma"	John Blackstock

Version	Date	Summary of changes	Preparer
		notices and hard-wired requirements to ".pdf" documents etc. Change (reduction) in critical contingency pressure thresholds at Cambridge and Waitangirua Delivery Points within the existing Schedule 1 ranges.	

Approval

Version	Date	Approved	By
12.0	01/10/2020		Ryan Phipps
13.0	5/10/2022	Approved by GIC on 03/10/22 after the necessary review and approval processes under the CCM Regulations	Vaughan Astwood
14.0	07/03/2024	Approved by GIC on 07/03/24 after the necessary review and approval processes under the CCM Regulations	Vaughan Astwood
15	20/04/2026	Approved by GIC on 20/04/26 after the necessary review and approval processes under the CCM Regulations	Vaughan Astwood

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1. Introduction

1.1. Purpose

This Critical Contingency Management Plan (**CCMP**) has been prepared by First Gas Limited (**Firstgas**) in compliance with its obligations as a Transmission System Owner (**TSO**) under the Gas Governance (Critical Contingency Management) Regulations 2008 and amendments (the **Regulations**).

The stated 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*"[1].

1.2. Scope

The content to be included in a CCMP is specified in Regulation 25 and comprises:

(a) Thresholds that will be used by the Critical Contingency Operator (**CCO**) to determine whether a Critical Contingency should be declared;

(b) A description of the events which Firstgas considers may result in a breach of the thresholds;

(c) Actions that Firstgas could take to remedy a breach of the thresholds;

(d) A process based on Schedule 2 of the Regulations outlining the manner in which curtailment and restoration arrangements will be implemented during a Critical Contingency;

(e) A communications plan which includes a description of the types, mode, and timing of communications initiated and received by Firstgas before and during a Critical Contingency;

(f) Contact details of suitably qualified personnel at Firstgas who will be responsible for receiving communications from the CCO and giving directions in accordance with the CCMP;

(g) A description of the circumstances under, and reasons why, Firstgas considers it may be desirable for the CCO to restore supply to the transmission system in an order different from that described in the curtailment arrangements specified in the Regulations;

(h) A process based on Regulations 73 to 82 outlining the manner in which Critical Contingency imbalances will be calculated for each affected party;

(i) A list of contact details for the parties specified in Regulation 25(1)(i);

(j) A description of how transmission system information referred to in Regulation 38 will be provided by Firstgas to the CCO; and

(k) Any other items appropriate to give effect to the purpose of the Regulations.

1.3. Relationship with Transmission System Codes

This CCMP must be consistent with all applicable Transmission Codes. This currently includes the Gas Transmission Code (**GTC**) and the Maui Pipeline Operating Code (**MPOC**).

The GTC and MPOC must be read subject to the Regulations and if any obligation or liability in respect of the same matter is provided for in both the GTC and/or MPOC and the Regulations then to the extent there is any inconsistency the Regulations prevail.[2]

1.4. Roles During a Critical Contingency

The roles of the CCO and Firstgas during a critical contingency are described in the Regulations. Firstgas as the TSO during a critical contingency is required to:

- comply with the directions of the CCO, and based on those directions,

[1] Regulation 3
[2] Regulation 13

- must issue directions to Retailers and Large Consumers in accordance with the Regulations, and
- in a manner consistent with this CCMP and the communications plan contained within.[3]

Firstgas may also have a separate role during a critical contingency as the owner of an asset (i.e. the gas Transmission System) the failure of which has caused or contributed to the declaration of a Critical Contingency. The obligations of an Asset Owner are explored in further detail in section 4.4 of the CCMP.

The roles and responsibilities of the following important stakeholders are also described in the Regulations:

- Retailers;
- Large Consumers;
- Gas Distributors; and
- Gas Producers (including Gas Storage Operators).

Firstgas has developed "Quick Reference Guides" that are designed to set out the key responsibilities, activities and expectations relating to these stakeholders prior to and during a critical contingency event. These short guides provide stakeholders with a more focused summary of the key processes and information flows for their group, including communications with both the TSO and the CCO. The guides can be viewed and downloaded from the "Critical Contingency" section of the "Publications" menu on OATIS.

1.5. Terminology

All capitalised terms in this CCMP have the same meaning as those terms in the Regulations.

As a result of there being a single TSO (Firstgas) but two Transmission System Codes currently in force (GTC and MPOC), there will be occasions within this CCMP where the "Maui Pipeline" will be distinguished from the "Non-Maui" parts of the Transmission System.

[3] Regulation 54(a) and 54(b)(ii)

2. Pre-Critical Contingency

2.1. Potential Critical Contingency

The GTC and MPOC and associated internal documentation set out Firstgas' rights and obligations and the steps Firstgas may take as TSO ahead of a Critical Contingency.

Firstgas' remedial actions prior to the declaration of a critical contingency may include:

- purchasing balancing gas,
- maximising throughput through use of Firstgas' compressors,
- reconfiguration of the Transmission System,
- calling on interruptible contracts,
- operational flow orders (**OFO's**), curtailments and shutdowns.

Section 2.2 sets out the type of events that may feasibly result in the declaration of a critical contingency by the CCO. If it is likely that any of those events may result in a breach of a critical contingency pressure threshold for any part of the Transmission System then Firstgas will inform the CCO in accordance with the CCO Communication Plan and section 3 of this CCMP.

The CCO may issue a potential Critical Contingency notice to give warning that Transmission System conditions have deteriorated to a point where a Critical Contingency is likely to occur.

When a potential Critical Contingency has been resolved Firstgas will inform the CCO in accordance with the CCO Communication Plan and section 3 of this CCMP.

If a Critical Contingency is declared by the CCO these remedial actions may continue to be takenin combination with instructions from the CCO.

2.2. Events that may cause threshold breaches and remedy actions

The following are examples of events Firstgas considers may feasibly result in a breach of a Critical Contingency threshold[4]:

- Loss or reduction of supply from a gas producer or interconnected pipeline
- Loss or reduction in compression capacity
- Pipeline defect resulting in temporary de-rating of pipeline
- Pipeline defect or damage causing loss of containment
- Main line valve malfunction causing isolation of downstream pipeline
- Adverse weather conditions
- A failure by an interconnected party or Shipper to respond to an operational flow order
- Sabotage
- Interruption to supply due to operational issues (e,g, stuck PIG)
- Shippers or Delivery Points taking more than the quantity of gas they are contractually entitled to under the transmission codes
- Natural disaster including earthquakes, tsunami and volcanic eruption

[4] Reg 25(1)(b). Information relating to Critical Contingency thresholds is provided in Section 5

3. Communications Plan

3.1. Purpose and objective

This communications plan explains:

- the notices that Firstgas (as TSO) will send during a Critical Contingency event;
- who receives those notices, how they should respond, and associated timeframes; and
- the contact details for Firstgas and other relevant stakeholders during a Critical Contingency event.

The plan meets the requirements of Regulations 25(1)(e), (f), (i), (j).

3.2. Contacts & Target audience

3.2.1. OATIS

The Open Access Transmission Information System (OATIS) is the online IT system that Firstgas and stakeholders use to schedule gas for transportation on the Transmission System.[5]

Firstgas also uses OATIS to meets its communication requirements under the CCMP and the Regulations.

3.2.2. Who receives notices?

Notices are sent to the following groups, as defined in Regulations 25(e) and (i):

- CCO
- Interconnected Parties
- Large Consumers
- Operators of gas storage facilities
- Shippers
- Retailers
- Gas distributors
- Operators of gas production and upstream facilities

A full list of current stakeholders is set out in Appendix 4.

3.2.3. Stakeholder Contact Details

Stakeholder contact details are stored in OATIS by party and contact group. Regular OATIS users (e.g. Shippers, Interconnected Parties) have separate contact groups from occasional users (e.g. some Retailers and distributors). Firstgas uses these OATIS groups to send SMS and email alerts as required.OATIS users must keep their contact details current. Monthly email reminders are sent by Firstgas to confirm or update details. For non-OATIS users, Firstgas checks and updates contact details every six months or as needed.

3.2.4. Firstgas Contact Details

Firstgas must appoint a contact person to communicate with the CCO and issue directions under the CCMP. This person is typically the Clarus Duty Manager or another authorised person. [6] Contact details for the Clarus Duty Manager are set out in Appendix 5.

3.3. Communication of notices

3.3.1. Normal method for issuing Notices

The CCO issues notices to Firstgas under the CCO Communications Plan.

All notices and associated directions issued by Firstgas will be published:

[5] OATIS can be accessed at: www.oatis.co.nz

[6] Other such persons may include the Systems Operations Manager, Incident Controller, Emergency Management Team Leader and/or Critical Contingency Liaison (in the Emergency Management Team), Firstgas Control Room Operator, Duty Scheduler, Senior Management and communications personnel.

- on OATIS as a 'public' notice;
- within 30-minutes of receiving them from the CCO; and
- with an accompanying email and/or SMS notification to stakeholders set-up to receive notifications in OATIS.

Notices may be issued in this manner at any time 24/7 and stakeholders must be ready to receive and act on notices promptly.

Standard notice templates are not included in the CCMP because critical contingencies may require flexible formats. However, Firstgas may elect to publish examples of notices that may be used for critical contingency purposes on the publications section of the OATIS website.

Notices are classified as either urgent or ordinary. Ordinary notices are normally in writing and published on OATIS with an accompanying SMS and/or email notifying stakeholders of the publication of the notice.

Urgent notices may be given orally if needed, with written confirmation provided as soon as possible. If a party cannot access OATIS, alternative email/SMS systems will be used.

3.3.2. Alternative methods for issuing Notices

If the notice functionality on OATIS is unavailable:

- Firstgas will use standard IT (information technology) applications to communicate written notices as soon as reasonably practicable (including email / SMS);
- If IT applications fail, notices will be given by phone and confirmed in writing;
- If phone services fail, satellite phones will be used to the full extent possible.

3.3.3. General Critical Contingency Notice Conditions

Notices will be given and received in accordance with sections 22 and 23 of the Regulations.

All notices issued follow this Communications Plan.

3.4. Communication of Potential Critical Contingency

If the CCO issues a Notice of Potential Critical Contingency or a Notice of Termination of Potential Critical Contingency, Firstgas will notify all parties listed in Appendix 4.

A Potential Critical Contingency Notice advises that a possible Critical Contingency exists and identifies affected areas.

A Potential Critical Contingency Termination Notice advises that the potential contingency has ended.

3.5. Communications on Declaration of Critical Contingency

If the CCO declares a Critical Contingency, Firstgas will notify all parties in Appendix 4.The Critical Contingency Declaration Notice will:

- Confirm the critical contingency declaration time and date;
- Identify the areas of the transmission system that are affected;
- State that CCO/TSO directions must be followed; and
- Indicate if it is a Regional Critical Contingency (Regulation 52A).

See Appendix 1 for the process flow chart for communications on the declaration of a Critical Contingency.

3.6. Communications during a Critical Contingency

Notices issued during a critical contingency under Regulation 53 (examples given below) will be sent to all parties in Appendix 4. It will be the responsibility of these parties to determine what actions they may need to take as result of receiving a notice.

The types of notices issued during a critical contingency include:

1. **Curtail Demand** – directions to curtail demand in accordance with Section 5.4 to stabilise the transmission system. This may contain directions to curtail subsets of demand within a curtailment band or subsets of geographically located demand within a curtailment band.
2. **Revise Demand Curtailment** – updated directions to adjust demand curtailment. The latest notice always overrides previous ones.
3. **Restore Demand** – directions to restore demand once the transmission system has stabilised. Demand restoration is normally in reverse order of curtailment, unless otherwise directed. Demand restoration may follow Civil Defence requirements.
4. **Reconfigure System** – CCO may direct the TSO to reconfigure the transmission system if feasible.
5. **Status Update** – to keep stakeholders informed of the status of the critical contingency.

If Firstgas becomes aware of non-compliance with curtailment or restoration directives, it must inform the CCO in writing.

See Appendix 2 for the process flow chart for communications during a critical contingency.

3.7. Communications at the termination of a Critical Contingency

If the CCO issues a Termination Notice (Regulation 61), Firstgas will notify all parties in Appendix 4. The notice will confirm the time and date the critical contingency ended.

See Appendix 3 for the process flow chart for communications at the termination of a critical contingency..

3.8. Communication with CCO

Firstgas will communicate with the CCO as outlined in the CCO Communications Plan. This may be:

- in person;
- by phone;
- by email (using standard IT applications).

If email is unavailable:

- Firstgas will call the CCO and follow up with written confirmation as soon as possible.
- Alternatively, Firstgas may hand-deliver written communications.

If phone services are down:

- Firstgas will use satellite phones or meet in person if possible.

Firstgas has given permission for the CCO to mobilise to the Firstgas Control Room (or adjacent area) to manage a critical contingency event from that location if the circumstances suit.

3.9. Communication with Retailers and Large Consumers

Retailers and Large Consumers must send regular curtailment compliance updates to Firstgas at the frequency stated in critical contingency notices.

To streamline this process:

- Firstgas provides separate curtailment compliance templates for Retailers and Large Consumers, which are available on OATIS and the CCO website;
- Each group should send updates to the email addresses listed on the template;
- All Retailers and Large Consumers should be familiar with the templates and their instructions.

Timely and accurate curtailment compliance updates are essential. The CCO uses this data—alongside TSO analysis—to assess transmission system stability and guide decisions.

Retailers and Large Consumers must:

- Maintain clear internal processes for notifying customers and collecting compliance data;
- Ensure relevant staff understand these processes;
- Follow their Retailer Curtailment Plans as required under Regulation 43.

To avoid confusion each organisation should appoint a single point of contact to send curtailment compliance updates. If a party acts as both a Retailer and Large Consumer, updates may come from different staff within that organisation.

4. Information requirements

4.1. General

Under Regulations 38 and 38A, Firstgas must make the following information available to the CCO:

- Gas flow, metering, pressure, composition and quality data;
- Technical pipeline information; and
- Notices issued under the Transmission System Codes.

If the CCO requires additional data not readily available, they will request it in writing.

4.2. Information systems

Firstgas will provide the CCO with an appropriate level of access to the OATIS and SCADA system data to allow compliance with the information provision set out in Regulations 38 and 38A.

4.3. Operational pipeline data to be provided to CCO

Firstgas provides the CCO with operational data to:

- Help determine and declare a Critical Contingency event;
- Monitor and manage the Critical Contingency event; and
- Support decisions to terminate the critical contingency.

Even outside a critical contingency, the CCO needs ongoing access to system data to stay informed and ready. A Communications Protocol between the CCO and Firstgas outlines what data is required during normal and abnormal conditions. This protocol aligns with Regulations 38 and 38A and is summarised in Appendix 11 of the CCO Communications Plan.

4.4. Publishing of Information by Asset Owner

Regulation 54A and section (2) of Schedule 5 of the Regulations require that if an asset fails or is damaged and causes or contributes to a Critical Contingency, the asset owner must:

- Publish and regularly update information to keep stakeholders informed; and
- Prepare a formal statement after curtailment of Band 3 consumers (see Appendix 9)

Likely asset owners include who would cause or contribute to a critical contingency are:

- Firstgas (as owner and operator of the Transmission System);
- Gas producers or upstream facility owners;
- Third-party pipeline owners connected to Firstgas' Transmission System.

If Firstgas is the affected asset owner, it will publish the required statements and updates on:

- www.firstgas.co.nz; and
- www.oatis.co.nz

5. Intra-Critical Contingency processes

5.1. Safety statement

If Firstgas considers that compliance with any part of the Regulations or any direction issued by the CCO (or any other party) in pursuance of the Regulations would unreasonably endanger the life or safety of any person then Firstgas may elect not to comply and/or take alternative actions deemed to be appropriate under the prevailing circumstances.

Should Firstgas elect to not comply with the Regulations on the grounds of safety and to take alternative actions it will inform the CCO and any other affected parties. Information will be communicated by telephone and confirmed in writing giving reasons for electing to not comply and details of any appropriate alternative actions.

5.2. Pipeline thresholds

The Critical Contingency thresholds for the transmission system are measured at the points in Table 1. The thresholds themselves are expressed both as a minimum pressure threshold (P_{min}) and in terms of the time remaining to reach P_{min}. The time thresholds are based on the need to allow sufficient time for load curtailment directives to be issued and complied with by the affected consumers in the selected curtailment bands during a Critical Contingency.

The pressure thresholds are selected to ensure that the transmission system and connected gas distribution networks continue to be supplied with gas in sufficient quantities to prevent pressure falling to dangerous or unsustainable levels and to continue to supply gas in sufficient quantities to domestic consumers.

Table 1 pipeline thresholds

Pipeline Name	Point of Measurement	P_{min} (barg)	Threshold Time (Hours to reach P_{min})
Maui	Rotowaro	30.0	3
Maui	Any other gas gate	30.0	5
South	Waitangirua	33.0	10
Hawkes Bay Lateral	Hastings	30.0	5
Frankley Road to KGTP	KGTP	35.0	3
Bay Of Plenty	Gisborne	30.0	5
Bay Of Plenty	Tauranga	30.0	5
Bay Of Plenty	Whakatane	30.0	5
Morrinsville Lateral	Cambridge	27.5	5
Central (North)	Westfield	37.5	6
North	Whangarei	27.5	5
Firstgas Pipeline	Any other gas gate (excluding Broadlands and Taupo)	30.0	5

In the event of pipeline damage or other major physical asset failure threshold time to reach P_{min} may be significantly shorter than the times indicated in the above table. It is also possible that critical contingency thresholds may be breached for short durations due to factors such as:

- high demand or system flow changes
- Station maintenance and instrumentation calibration
- monitoring system anomalies
- operation of compressors
- start-up of Large Consumers
- pipeline pigging

Such temporary breaches will typically be because of transient system conditions. Further detail on the setting of contingency pressure thresholds and the steps that Firstgas takes to manage transient system conditions is found in Appendix 8.

5.3. Declaration of a critical contingency

The process for declaring a critical contingency as described in the Regulations, is summarised below.

The CCO must determine and declare that there is a critical contingency if:

- The CCO considers that a breach has occurred of one (1) or more of the thresholds that are specified in this CCMP under r25 (1) (a); or

The CCO:

- Has a reasonable expectation that a breach of one (1) or more of those thresholds is otherwise unavoidable; and
- Considers that the determination is necessary to achieve the purpose of the Regulations.

5.4. Curtailment arrangements

During a Critical Contingency, Firstgas will follow curtailment directions from the CCO, as required under Regulations 50 and 54.

The CCO must ensure its directions meet the objectives in Schedule 2 of the Regulations. If Firstgas believes a curtailment direction does not align with those objectives, it will notify the CCO immediately.

Once directions are received, Firstgas will promptly issue notices to all parties listed in Appendix 4, following the process in Section 3.3.

Curtailment bands are defined in Schedule 3 of the Regulations and shown in Appendix 10.

CCO notices may direct curtailment of:

- Specific subsets of demand within a curtailment band; and/or
- Geographically targeted demand within a curtailment band.

Firstgas will review these directions and may suggest alternatives to the CCO if they better meet the intent of the Regulations. Curtailment under the Regulations is separate from any curtailment carried out by Firstgas under the Transmission Codes.

5.5. Normal demand restoration arrangements

Curtailed demand will normally be restored in the reverse order in which it was curtailed i.e. last to be curtailed is first to be restored.

If Firstgas believes any CCO issued restoration direction is inconsistent with the objectives set out in Schedule 2 to the Regulations, it will advise the CCO immediately.

During demand restoration Firstgas will monitor the transmission system stability and capacity. If problems arise, Firstgas will contact the CCO and suggest adjustments (e.g. modifying directives or delaying further restoration).

The CCO will only issue restoration directions once transmission pressure and linepack have stabilised. Gas distributors are responsible for managing restoration on their downstream networks to ensure that the process happens in a safe and orderly manner.

5.6. Alternative demand restoration arrangements

In some cases, Firstgas may recommend restoring demand in a different order if it better meets the objectives in Schedule 2. If so, Firstgas will inform the CCO.

After consultation, the CCO may issue revised restoration directives. Firstgas will then notify all parties listed in Appendix 4, following the process in Section 3.3.

Examples of when alternative restoration may be appropriate are provided in Appendix 10.

6. Critical Contingency Imbalance

6.1. Contingency imbalance calculation methodology

Firstgas' CCMP is required to include a process, consistent with regulations 73 to 82, outlining how contingency imbalances will be determined for each affected party over the period of a critical contingency. This is to include:

- what information is to be used by Firstgas to determine contingency imbalances;
- how Firstgas is to allocate contingency imbalances to affected parties; and
- processes outlining how the information concerning those allocated contingency imbalances is to be provided to the GIC for the invoicing of those allocated contingency imbalances.

As a result of there currently being two distinct transmission system codes, two contingency imbalance calculation methodologies are required. Firstgas' contingency imbalance calculation methodologies for both:

(a) the Maui Pipeline, and

(b) the Non-Maui part of the transmission system, are set out in Appendix 7 to this CCMP.

A payment under the Regulations in relation to a Contingency Imbalance discharges any payment obligation in respect of the same Contingency Imbalance in the GTC or MPOC.[7]

6.2. Contingency imbalance period

The Regulations specify that contingency imbalances should be determined based on either a daily (whole-day) basis or using a sub-daily period[8]. Firstgas currently uses a whole-day imbalance calculation period to calculate contingency imbalances.

The Regulations define a "whole day" as commencing at 0000 hours on the day on which the critical contingency was declared[9]. The day will conclude at 2400 hours on the day in which the critical contingency was terminated[10] This is the same as a "Day" as defined in the Transmission Codes and is in New Zealand Standard Time (NZST).

[7] Regulation 81

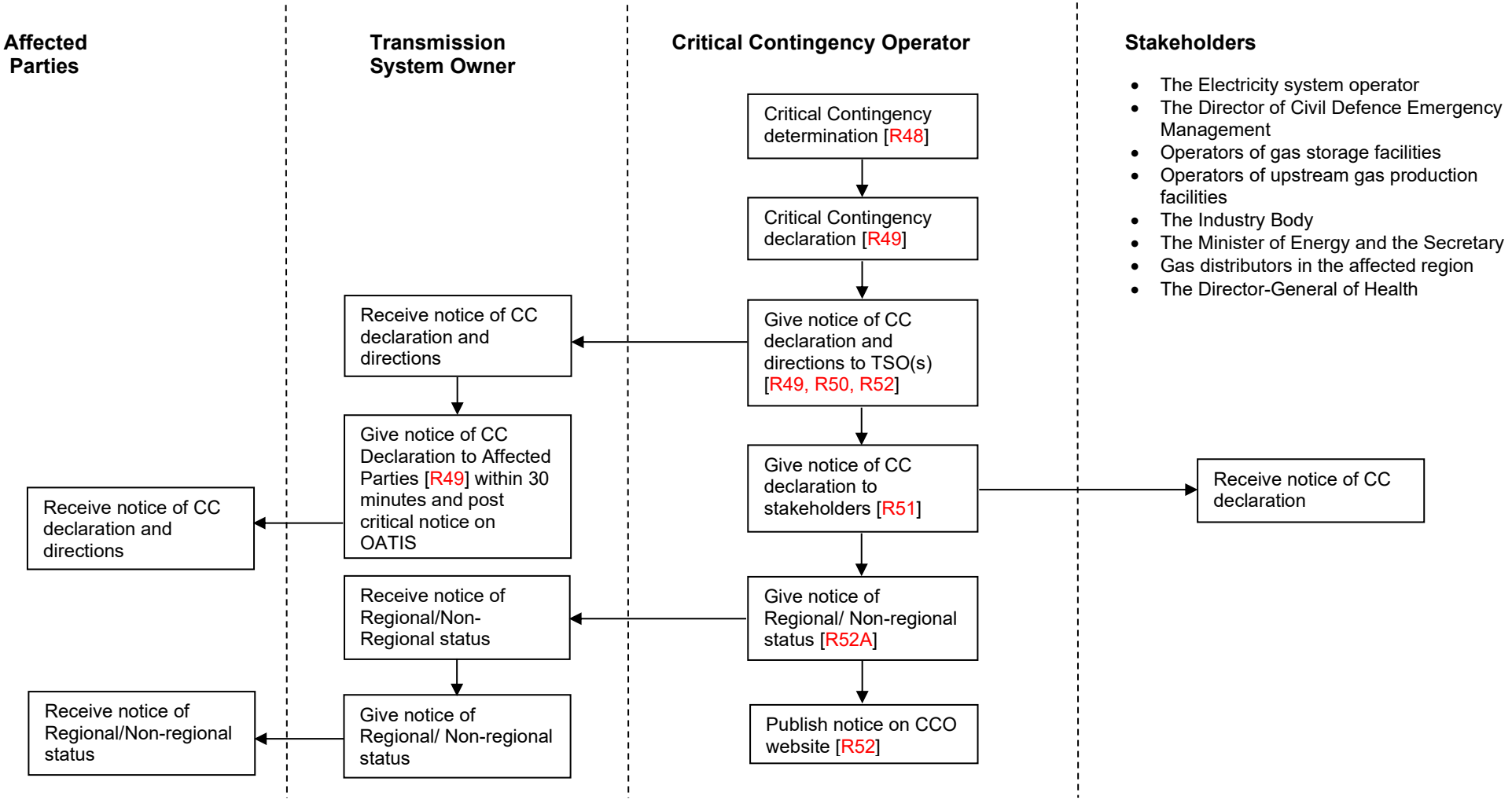
[8] Regulation 75 (a) and (b)

[9] Regulation 75 (b) (ii) (A).

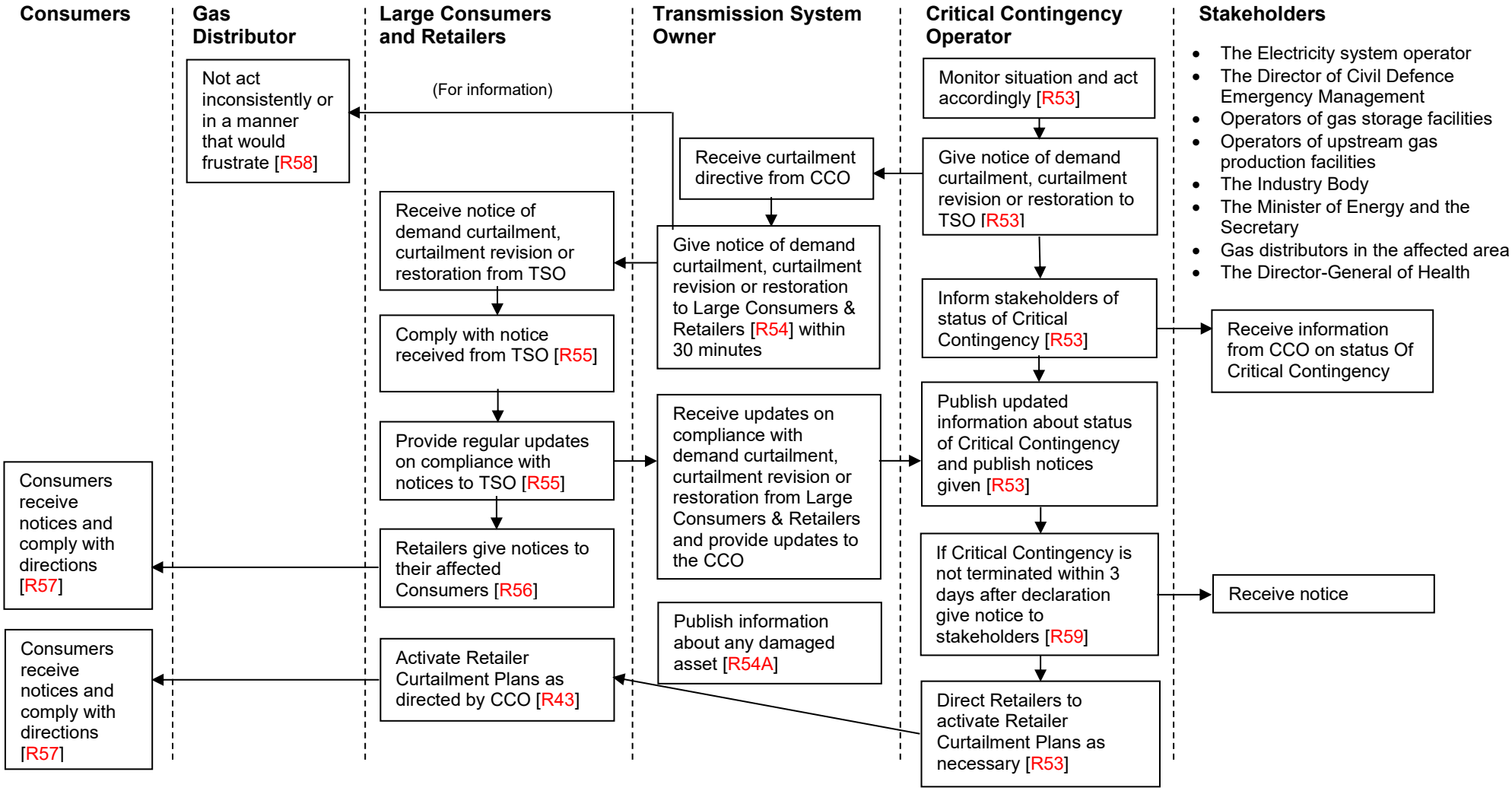
[10] Regulation 75 (b) (ii) (B)

7. CCMP Appendices

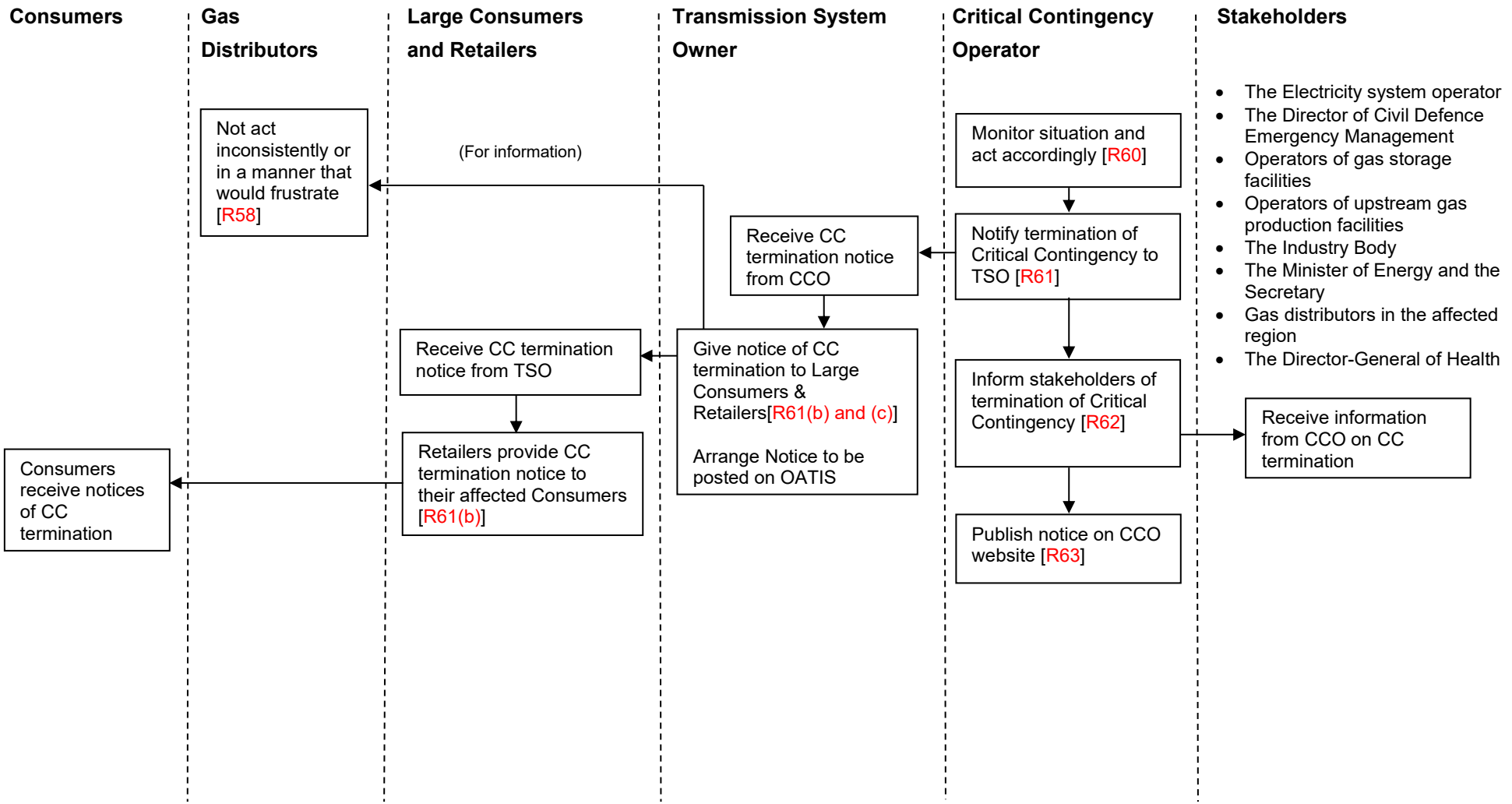
Appendix 1 - Process for declaration of Critical Contingency



Appendix 2 - Process during a Critical Contingency



Appendix 3 - Process for termination of Critical Contingency



Appendix 4 - Contact details

Contact details for affected parties are contained and updated within OATIS. It is the responsibility of the identified affected parties to maintain and keep up to date contact details in OATIS.

An updated OATIS contacts report is generated every day and these reports are stored outside of OATIS. In the event that OATIS is unavailable during a Critical Contingency the most recent contacts report will be used.

Firstgas as TSO will check that contact details are completed in OATIS for each party prior to the go-live date and at six monthly intervals thereafter. Regular reminders will be issued to affected parties to check and amend their details as appropriate.

Contact details for these parties will be updated using existing OATIS processes. These parties include the following:

Category	Individual Organisations
Transmission System Owner	• Firstgas
Gas Distributors	• Firstgas • Powerco • Vector • Nova Energy • Gasnet
Shippers (both Maui Pipeline and non-Maui parts of the Transmission System)	• Contact Energy Limited • Genesis Energy Limited • Greymouth Gas New Zealand Limited • Mercury Limited • Nova Energy Limited • Methanex New Zealand Limited • Todd Energy Limited • OMV New Zealand Limited • emsTradepoint Limited • Transgas Limited • Papakura Power Limited • Cheal Petroleum Limited • Pan Pac Forest Products Limited • Fonterra Co-operative Group Limited • NZEC Tariki Limited • Pulse Energy Alliance LP • Visy Glass Operations (NZ) Limited • Ballance Agri-Nutrients (Kapuni) Limited • Evonik Peroxide Limited • NZ Hothouse Limited • Clay Bricks Limited
Retailers	• Contact Energy

Category	Individual Organisations
	• Genesis Energy • Mercury Energy • Nova Energy • Hanergy • Greymouth Gas New Zealand Limited • Pulse Energy • Transgas Limited
Gas Producers (both Maui Pipeline and non-Maui parts of the Transmission System) (Includes MPOC Receipt Point "Welded Parties" and Receipt Point Interconnected Parties on the non-Maui parts of the Transmission System)	• Todd Energy Limited - Kapuni Gas Treatment Plant, McKee Production Station • Greymouth Gas New Zealand Limited - Turangi Production Station, Kowhai Mixing Station • Greymouth Petroleum Limited - Kaimiro Production Station, • Beach Energy Limited - Kupe Production Station • Tamarind NZ Onshore Ltd – Norfolk Receipt Point, Sidewinder Receipt Point • Cheal Petroleum Limited – Cardiff Mixing Station • OMV Production Limited - Pohokura Production Station • OMV Taranaki Limited – Maui Production Station • Todd Pohokura Limited – Pohokura Production Station • First Renewables Limited – Broadlands Receipt Point
Storage Facilities	• Flexgas Limited - Ahuroa Storage Facility, Stratford 3 Receipt Point
Large Consumers (both Maui Pipeline and non-Maui parts of the Transmission System) (Includes MPOC Delivery Point "Welded Parties")	• Contact Energy – Stratford Peakers • Ballance Agri-Nutrients (Kapuni) Limited • Methanex New Zealand Limited – Motunui and Waitara Valley Methanol Plants • Genesis Energy Limited – Huntly Power Station • Nova Energy Limited – Mangorei Peaker

Appendix 5 - Designated TSO representative details

Role	Individual	Email address	Control Room Cell phone number	Control Room Direct dial number
Responsible for giving (a) communications to the CCO under the Communications Plan (Regulation 25(f)(i)); and (b) directions in accordance with the CCMP (Regulation 25(f)(ii))	Clarus Duty Manager (contactable 24/7 via Firstgas Control Room)	bbkcontrolroom@firstgas.co.nz	027 442 9051	06 759 6499 (DDI) or 06 755 0811 (emergency phone if IP phone system fails) or +61 488 832 748 (satellite phone)

Appendix 6 - CCO Contact Details

Email Address	cco@cco.org.nz
Internet Site	https://www.cco.org.nz/
24/7 Contact Phone Number	0800 226 267

Appendix 7 - Imbalance Calculation Methodology

Contingency Imbalance Calculation Methodology – Maui Pipeline

Italicised terms in this section refer to definitions set out in the MPOC.

Firstgas will take the following steps to determine the contingency imbalances for each Maui Pipeline affected party over the period of a critical contingency[11] as soon as possible after the critical contingency has been terminated so that business as usual under the MPOC can resume. In particular but without limitation, Firstgas will calculate quantities for all *Welded Points* under steps 1 to 8 as soon as possible after Firstgas receives validated data for the relevant Day/s. This is generally by 12 noon on the next succeeding *Business Day* for *Large Station Welded Points* and by the sixth *Business Day* of the month following the Critical Contingency for *Small Station Welded Points*. If such validated data is not received by that time Firstgas may determine quantities by using "best available information" as noted in steps 1 and 2 below. A reference to the "quantity calculation time" shall be read accordingly.

1. Retrieve the quantity of gas contractually agreed to inject or entitled to take by all interconnected parties[12] at their interconnected point(s). This would include *Scheduled Quantities* at *Welded Points* accessed via OATIS.[13] If OATIS data is unavailable, then "best information available" will be used.

2. Retrieve the measured quantities for all interconnected parties at their interconnected point(s). This would include validated injection and off-take gas flow quantities accessed via OATIS, or "best information available" at all *Welded Points*. In the event that OATIS is not available then "best information available" may include raw gas flow data from *Welded Points*. This information would be collected and converted to energy units manually.

3. If necessary, proportionally adjust quantities in accordance with r75 (d).

4. Calculate the volume of each contingency imbalance for each interconnected party's interconnection point in gigajoules in accordance with r74 (2) (a) & (b).

5. Calculate the aggregate positive contingency imbalance.

6. Calculate the aggregate negative contingency imbalance.

7. If the aggregate negative contingency imbalance exceeds the aggregate positive contingency imbalance, this difference will be treated as a positive contingency imbalance to be allocated to Firstgas in accordance with r74 (2) (c) and r75 (f) (i).

8. If the aggregate negative contingency imbalance is less than the aggregate positive contingency imbalance, adjust the allocation to each *Welded Point* with a positive contingency imbalance in accordance with r75 (f) (ii)[14].

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[11] Price and imbalance provisions do not apply to regional critical contingencies (regulation 82).

[12] An "interconnected party" is defined in The Regulations by reference to the interconnection agreement described in the definition and the part of the transmission system affected by the critical contingency; in the case of Maui Pipeline this is the entire Maui Pipeline. For this purpose the interconnection agreement must: (a) be current; (b) allow for a person "to take gas from, or inject gas into," an interconnection point; and (c) relate to an "interconnection point" of the kind defined in The Regulations. Note also that The Regulations do not distinguish between *Large Stations* and *Small Stations* therefore *Small Stations* will be subject to contingency imbalance calculations.

[13] OATIS is the information exchange system that *Firstgas* uses to receive and display operational pipeline information. The OATIS website homepage is www.oatis.co.nz.

[14] When then the critical contingency imbalance quantities have been identified these must be removed from OATIS so that the *Welded Point Running Operational Imbalance* only reflects quantities subject to MPOC provisions and so that business as usual can resume with the least amount of disruption. To achieve this step the critical contingency imbalances will be cashed out at $0 in OATIS. This approach utilises existing OATIS functionality thereby avoiding the cost to users of OATIS changes. OATIS cash out only adjusts the *Running Operational Imbalance* figure in OATIS, it does not extract the daily *Operational Imbalance* activity amount or *Excess Daily Imbalance* amount associated with a critical contingency imbalance.

9. Receive the critical contingency price in dollars per gigajoule from the industry expert. The timing for Firstgas to receive the critical contingency price from the industry expert is described in r72(4).

10. Calculate the value of each contingency imbalance in accordance with r75(h) using the specified formula.

11. Send the contingency imbalance amounts (volume and value) to the industry body in accordance with r77 (1) (a) & (b). This information will be sent in digital spreadsheet format via electronic transmission[15].

12. If r80(1) applies as regards Firstgas, as TSO, then Firstgas will advise the industry body as required by r80 of The Regulations.

Contingency Imbalance Calculation Methodology – Non-Maui Parts of the Transmission System

Introduction

Purpose

Describe the business process that First Gas Limited (**Firstgas**), as Transmission System Owner (**TSO**), will use to integrate the Contingency Imbalance regime prescribed by the Gas Governance (Critical Contingency Management) Regulations 2008 (**Regulations**) with the business-as-usual balancing regime operated by Firstgas as TSO, pursuant to section 8 of the Vector Transmission Code (GTC).

This Appendix does not apply to Regional Critical Contingencies.

Background

The Gas Industry Company (**GIC**) is required under the Regulations to determine and resolve Contingency Imbalances that arise out of a Critical Contingency (Regulations 73 to 82). The GIC must ensure that its functions under this part of the Regulations achieve the objectives of ensuring that fair, effective, and transparent arrangements are implemented to accurately determine Contingency Imbalances and allocate them to affected parties (Regulation 73).

TSOs are required to determine the negative or positive Contingency Imbalances for each affected party over the period of the Critical Contingency (Regulations 74(1) and (2)). Firstgas as TSO will determine the Contingency Imbalances on its Transmission System (excluding the Maui Pipeline) based on GTC Shipper Mismatch during the Critical Contingency. Contingency Imbalances on the Maui Pipeline will be calculated in accordance with the methodology set-out in the earlier section of Appendix 7 entitled “Contingency Imbalance Calculation Methodology – Maui Pipeline”.

Note: While all reasonable endeavours have been used to develop the methodology set out in this Appendix 8 in accordance with Regulations 73 to 82, it has become apparent that this methodology is not consistent with the Regulations for all Critical Contingency events. For example, the methodology is not consistent with the Regulations where the Maui Pipeline Linepack has increased during a Critical Contingency event and there is a negative Operational Imbalance at the Firstgas TP Welded Points. Accordingly, for each Critical Contingency Imbalance calculation, Firstgas will consider whether the methodology in this Appendix 7 is consistent with the Regulations. If Firstgas as a TSO (acting reasonably) determines that the methodology is not consistent with the Regulations for a Critical Contingency event, Firstgas will consult with the industry body on an alternative method and after that consultation, Firstgas may apply an alternative methodology to calculate Contingency Imbalances in a manner consistent with the Regulations.

Definitions

[15] If a metering error of a kind for which a correction is required to be computed and made under the MPOC is discovered and corrected in the ordinary course before step 11 occurs, Firstgas will recalculate any affected imbalances in accordance with r74 and r75 prior to completing steps 10 – 11.

In this Appendix:

BPP Account has the meaning given to it by the GTC;

BPP Allocation Day has the meaning given to it by the GTC;

BPP Trustee has the meaning given to it by the GTC;

CC Day means a Day on which a Critical Contingency is in effect;

CC Month means a month containing a CC Day;

CC Period (or CCP) means, in respect of each Critical Contingency, the period starting on CCP_{Start} and ending on CCP_{End};

$CCP_{Start-1}$ means, in respect of each Critical Contingency, the Day before the Day on which a Critical Contingency is declared;

CCP_{Start} means, in respect of each Critical Contingency, the Day on which a Critical Contingency is declared;

CCP_{End} means, in respect of each Critical Contingency, Day on which the Critical Contingency was terminated;

CCP_{End+1} means, in respect of each Critical Contingency, the Day after the Day on which a Critical Contingency was terminated;

Closing Position has the meaning given to it by the MBB D+1 Pilot Agreement;

Contingency Imbalance has the meaning given to it in the Regulations;

Critical Contingency (or CC) has the meaning given to it in the Regulations;

Critical Contingency Price has the meaning given to it in the Regulations;

Day has the meaning given to it by the GTC;

Delivery Quantity has the meaning given to it by the MBB D+1 Pilot Agreement;

Incentive Pool Debits has the meaning given to it by the MPOC;

Linepack has the meaning given to it by the GTC;[16]

Maui Contingency Pool means the contingency pool (representing the Maui Pipeline), reconciled in accordance with the Firstgas Critical Contingency Management Plan: MAUI PIPELINE approved under Regulation 30 of the Regulations;

Maui Pipeline Operating Code (MPOC) has the meaning given to it by the Regulations;

MBB D+1 Pilot Agreement (D+1 Agreement) means the MBB D+1 Pilot Agreement dated 1 December 2015 signed between Firstgas and the Shippers as amended from time to time in accordance with its terms (and includes any replacement agreement or document as well as any regulatory substitution)

[16] "Linepack" as calculated by Regulation 75 (f)(i) and (ii) includes both a change in physical Linepack as well as the Imbalance accumulated during the Critical Contingency.

Mismatch means, in relation to a Day, a Pipeline and a GTC Shipper, that Shipper's aggregate Receipt Quantity on that Pipeline minus that GTC Shipper's aggregate Delivery Quantity on that Pipeline;

Non-Code Shipper has the meaning given to it by the GTC;

OATIS has the meaning given to it by the GTC;

Operational Imbalance (or OI) has the meaning given to it by the MPOC;

Peaking Limit has the meaning given to it by the MPOC;

Pipeline has the meaning given to it by the GTC;

Positive Mismatch Price has the meaning given to it by the MPOC;

Receipt Quantity has the meaning given to it by the GTC;

Regional Critical Contingency has the meaning given to it by the Regulations;

Residual means, in respect of each shipper or Firstgas, the difference between that party's adjusted Contingency Imbalance calculated under Regulation 75(f)(ii) and that party's Contingency Imbalance determined under Regulations 74(2)(a) and (b);

Residual Imbalance has the meaning given to it by the MBB D+1 Pilot Agreement;

Running Mismatch has the meaning given to it by the MBB D+1 Pilot Agreement;

Running Operational Imbalance (or ROI) has the meaning given to it by the MPOC;

TP Welded Point has the meaning given to it by the MPOC;

Transmission System Owner (TSO) has the meaning given to it by the Regulations;

Firstgas Contingency Pool means the contingency pool representing the Firstgas Transmission System, reconciled in accordance with the process in this Appendix;

Vector Running Imbalance (VRI) has the meaning given to it by the MBB D+1 Pilot Agreement;

Vector Transmission Code (GTC) has the meaning given to it by the Regulations;

GTC Shipper means a Shipper as defined in the GTC; and

Welded Point has the meaning given to it by the MPOC.

Amendments: A reference to the Regulations, the MPOC or the GTC includes any amendment made to the Regulations, the MPOC or the GTC.

Process

To properly integrate the Contingency Imbalance regime prescribed in the Regulations with Firstgas' business-as-usual regime under section 8 of the GTC (which relates to balancing and peaking), Firstgas will, subject to the Note in the Background above, carry-out the following process:

Brief Overview

- Any GTC Shippers share of Contingency Imbalances will be removed so that each GTC Shippers' Closing Position on CCP_{End} is identical to their Closing Position on $CCP_{Start-1}$. Regulation 75(a) and (b) specify that Contingency Imbalances should be determined using

either a daily (whole-day) basis or part-day basis. Firstgas is unable to determine Contingency Imbalances on a part-day basis as hourly or part-day downstream allocations cannot be obtained;

- In circumstances where there are excess positive Contingency Imbalances in the Firstgas Contingency Pool then Regulation 75(f)(ii) will apply. This means that after adjustments under Regulation 75(d), any Residual Contingency Imbalance that wasn't "cashed-out" under the Regulations must be returned to the BPP;
- Any Residual will be returned to each GTC Shipper as a Residual Imbalance on CCP_{End+1};
- The return of any Residual will be pro-rated across the Pipelines where it was created, so that GTC Shippers will not receive a more positive share of Contingency Imbalance back into a Pipeline than was removed on all CC Days; and
- Balancing cost allocations under the D+1 Agreement will resume for CCP_{End+1} onwards.

Detailed Methodology

Determine GTC Shipper Mismatch for each CC Day

Why: So that Mismatch can be used for the determination of any Contingency Imbalance.

When: As soon as is reasonably practicable after CCP_{End}.

1) Calculate the Mismatch for each CC Day, Pipeline affected by the Critical Contingency and GTC Shipper.

Make the Closing Positions for each CC Day, Pipeline and GTC Shipper equal to the Closing Positions on $CCP_{start-1}$

Why: So that Contingency Imbalances do not effect GTC Shipper positions after the CC.

When: As soon as is reasonably practicable after CCP_{End}**.**

2) Set GTC Shipper Mismatch to zero for all CC Days and Pipelines for the purposes of the D+1 Agreement.

Return non-Maui pipelines Linepack to pre-CC levels

Why: If Firstgas has an aggregate decrease in Linepack across all Pipelines[17] during the CC, then the Linepack must be restored to normal levels as soon as possible to ensure security of supply is maintained.

When: As soon as is reasonably practicable after CCP_{End}.

3) Determine if Firstgas had a decrease in Linepack across all Pipelines during the CC Period, using the following calculation:

$$\Delta \text{ Linepack}_{\text{(All Pipelines)}} = \sum \text{Linepack}_{\text{end}} - \sum \text{Linepack}_{\text{start}}$$

Where:

Δ Linepack $_{\text{(All Pipelines)}}$ is the change in Linepack during CCP on all Pipelines.

$\sum$Linepack $_{\text{start}}$ is the Linepack on all Pipelines, calculated for 0:00 hours (NZST) of CCP_{Start}.

[17] "Linepack" as calculated by regulation 75 (f) (i) and (ii) includes both a change in physical Linepack as well as the Imbalance accumulated during the Critical Contingency.

∑Linepack $_{end}$ is the Linepack on all Pipelines, calculated for 24:00 hours (NZST) of CCP_{End}.

If the calculation results in a positive number, there has been a decrease in the non-Maui pipelines linepack, proceed to step 4).

If the calculation results in a positive number, there has been an increase in linepack, skip step 4) and go to step 5).

4) Discuss the decrease in linepack with Gas Control and if necessary organize the purchase of gas.

If Firstgas has a gas supply agreement for the non-Maui pipelines then utilise this to its maximum capacity first.

For quantities greater than the gas supply agreement, follow 8.4 of the GTC if you have time for a formal request for tender process (RFT).

If a RFT is not practical then use the gas wholesale market on the Maui Pipeline.

If the gas can only be sourced from the Maui Pipeline's linepack then discuss with Gas Control and the Scheduling team how this will happen.

For any supply of gas from the Maui Pipeline you will need to enter the appropriate nominations in Maui OATIS. If the gas purchase is also to alleviate ROI due to change in linepack during the CC then organize a displaced gas nomination.

Returning to business as usual after the Critical Contingency

Why: So that the balancing regime detailed in section 8 of the Vector Transmission Code can resume normal operation as soon as possible.

When: On CCP_{End+1}.

5) On the Day after the Critical Contingency is terminated all MPOC and GTC balancing provisions will resume. This means that "cash-outs", Incentive Pool Debits and Peaking Limit charges will resume flowing through the BPP in accordance with those codes but based on Running Mismatch and Firstgas Running Imbalance positions that do not include Mismatch or Firstgas Imbalance generated on the CC Days, other than any Residual.

Determine all Contingency Imbalances

Why: To comply with the Regulations (Regulations 74 and 75).

When: As soon as is reasonably practicable.

6) In the spreadsheet (referred to in step 1)), sum each shipper's Mismatch position across all Pipelines and all CC Days. This will calculate a single positive or negative Contingency Imbalance figure for each shipper in the Firstgas Contingency Pool, in accordance with Regulation 74(2)(a)(iii) and (b)(iii).

7) Calculate Firstgas Contingency Imbalance in the Firstgas Contingency Pool at each TP Welded Point as follows:

- Enter the OI at each TP Welded Point on each CC Day into the spreadsheet;
- Sum the OI on each CC Day together at each TP Welded Point, to calculate an aggregate OI in respect of each TP Welded Point; and

- Multiply the aggregate OI at each TP Welded Point by -1, to calculate Firstgas' Contingency Imbalance in respect of each TP Welded Point, pursuant to Regulation 74(2)(a)(i)-(ii) and Regulation 74(2)(b)(i)-(ii).

The aggregate OI is multiplied by -1, because when Firstgas has a positive OI at a TP Welded Point during a CC, it has a negative Contingency Imbalance in the Firstgas Contingency Pool and an opposing positive Contingency Imbalance in the Maui Contingency Pool[18].

8) Calculate the aggregate positive Contingency Imbalance in the Firstgas Contingency Pool by summing all the positive Contingency Imbalances determined in step 6) and step 7) together.

9) Calculate the aggregate negative Contingency Imbalance in the Firstgas Contingency Pool by summing the absolute value of all the negative Contingency Imbalances calculated in step 6) and step 7) together.

10) In the event that the aggregate negative Contingency Imbalances are less than the aggregate positive Contingency Imbalances then this reflects a gain in Firstgas' "Linepack"[19] during the Critical Contingency. In this situation, adjust all positive Contingency Imbalances in accordance with the formula in Regulation 75(f)(ii), namely:

$M_A = M_{+ve} \times (\sum M_{-ve} / \sum M_{+ve})$

Where:

M_A is an adjusted positive Contingency Imbalance.

$\sum M_{-ve}$ is the absolute value of the aggregate negative Contingency Imbalances in the Firstgas Contingency Pool.

$\sum M_{+ve}$ is the aggregate positive Contingency Imbalances in the Firstgas Contingency Pool.

The Residual positive Contingency Imbalance (being the difference between M_A and M_{+ve}) will be put back into the BPP on CCP_{End+1} in steps 13) and 14).

A reduction in Firstgas' positive Contingency Imbalance in the Firstgas Contingency Pool due to the adjustment means that Firstgas will pay the Critical Contingency Price for a gain in "Linepack". This is due to a shortfall between the funds Firstgas paid into the Maui Contingency Pool for a negative Contingency Imbalance and the funds Firstgas received back from the Firstgas Contingency Pool for its adjusted positive Contingency Imbalance.

11) In the event that the aggregate negative Contingency Imbalances exceed aggregate positive Contingency Imbalances then this reflects a decrease in Firstgas "Linepack"[20] during the Critical Contingency. The difference will be treated as a positive Contingency Imbalance for Firstgas in accordance with Regulation 74(2)(c) and Regulation 75(f)(i).

12) Firstgas will not modify Contingency Imbalances in accordance with Regulation 75(d) unless explicitly instructed to do so by the GIC. By taking this approach, Firstgas assumes shippers acted on curtailment instructions issued by the CCO (Regulation 75(c)).

[18] These two Contingency Imbalances may not be equal-and-opposite if different adjustment factors are used when applying regulation 75 (f) (ii) (see step 10)).

[19] "Linepack" as calculated by reg 75 (f) (i) and (ii) includes both a change in physical Linepack as well as the Imbalance accumulated during the Critical Contingency.

[20] "Linepack" as calculated by regulation 75 (f) (i) and (ii) includes both a change in physical Linepack as well as the Imbalance accumulated during the Critical Contingency.

Return the Residual to Running Mismatch

Why: So that title to Gas is maintained under the GTC when positive Contingency Imbalances are adjusted by step 10).

Note: Under the D+1 Agreement VRI is a figure calculated by difference, because of this you will not need to calculate a Residual to VRI.

When: As soon as is reasonably practicable after CCP_{End+1}[21].

13) If step 10) adjusted the positive Contingency Imbalances in the Firstgas Contingency Pool, then calculate the Residual in respect of each shipper with a positive Contingency Imbalance[22], as follows:

    Residual = ∑Shipper Mismatch – Positive Contingency Imbalance

    Where:

    ∑Shipper Mismatch is the sum of that shipper's Mismatch across All Pipelines, on all CC Days[23]; and

    Positive Contingency Imbalance is the shipper's adjusted positive Contingency Imbalance that is determined under step 10).

If step 10) did not adjust positive Contingency Imbalances in the Firstgas Contingency Pool, then skip step 14) and go on to step 15).

14) For each shipper with positive Contingency Imbalance, return its Residual to the BPP by adding an amount (*Amount*) to its Residual Imbalance to be applied against shipper positions on CCP_{End+1}.

    The Amount is calculated as follows, in respect of each shipper with a positive Contingency Imbalance and in respect of each Pipeline:

    Amount = (Positive Mismatch / Total Positive Mismatch) * Residual

    Where:

    Positive Mismatch is the sum of the shipper's positive Mismatch[24], on all CC Days, on a Pipeline;

    Total Positive Mismatch is the sum of the shipper's positive Mismatch[25] on all CC Days, across All Pipelines; and

    The Residual is calculated in step 13).

15) Post the following information on OATIS as a public notice:

    - Each GTC Shipper's negative Contingency Imbalance;

[21] This means that balancing costs allocated from CCP +1 onwards are based on Running Mismatch positions inclusive of any Residual.

[22] Note that GTC Shippers with negative Contingency Imbalances will not have a Residual calculated, or returned to the BPP, because all negative Contingency Imbalances are "cashed-out" via the contingency cash pool (regulation 78).

[23] This is the original Mismatch shown in the BPP, before it was removed from the BPP as Critical Contingency Imbalance in step 2).

[24] This is the original Mismatch shown in the BPP, before it was removed from the BPP as Critical Contingency Imbalance in Step 2).

[25] This is the original Mismatch shown in the BPP, before it was removed from the BPP as Critical Contingency Imbalance in Step 2).

- Each GTC Shipper's positive Contingency Imbalance, both before and after any adjustment under Regulation 75(f)(ii);
- Firstgas positive or negative Contingency Imbalance at each TP Welded Point, both before and after any adjustment under Regulation 75(f)(ii); and
- Firstgas positive Contingency Imbalance (if any), both before and after any adjustment under Regulation 75(f)(ii).

Send the Contingency Imbalances to the Gas Industry Company.

Why: To comply with Regulation 77.

When: Between the publication of BPP invoices for the CC Month and the deadline specified by Regulation 77(1), being 36 business days after the end of the month in which the CC was terminated.

16) Receive the Critical Contingency Price in dollars per gigajoule from the industry expert.

17) Calculate the dollar value of each Contingency Imbalance, in accordance with Regulation 75(h).

18) Send the following Contingency Imbalance figures to the GIC in accordance with Regulation 77(1)(a) and (b):

- Each shipper's adjusted positive or negative Contingency Imbalance calculated in steps 6) and 10);
- Firstgas' adjusted positive or negative Contingency Imbalance at each TP Welded Point, as a party that injects gas into its Transmission System under Regulation 74(2)(a)(i) and Regulation 74(2)(b)(i), as calculated in steps 7) and 10);
- The positive Contingency Imbalance attributed to Firstgas, as TSO, by Regulation 74(2)(c) (refer to step 11));
- No Contingency Imbalance for each interconnected party injecting Gas into Firstgas' transmission system (e.g. Kapuni, Mokoia, Stratford 3, Kaimiro, etc.)[26]; and
- The dollar value of each Contingency Imbalance, calculated in step 17).

19) If Firstgas considers that it has been allocated a Contingency Imbalance in error, then Firstgas will advise the GIC as required by Regulation 80(1).

20) If the GIC determines that a material error has affected the Contingency Imbalance calculations and directs Firstgas to recalculate them under Regulation 80(3), then Firstgas will recalculate the Contingency Imbalances (and new Residuals) by repeating steps 2) – 13) (inclusive), using the best information available.

21) Firstgas will supply the recalculated Contingency Imbalances to the GIC.

22) Firstgas will return any difference between the old and new Residuals to Running Mismatch, by repeating step 14), replacing all references to 'Residual' with 'Difference' (defined as the new Residual – the old Residual).

[26] Firstgas considers that interconnected parties on the Firstgas Transmission System injecting Gas into the Firstgas Transmission System are not intended to be treated as "interconnected parties" under the Regulations. The GIC has acknowledged this. Interconnection agreements on the Firstgas Transmission System set out the terms on which a party may connect to the Firstgas Transmission System, with any under or over injection captured by shipper Mismatch.

Note: Residuals are considered as Information under section 8.21 of the GTC. Accordingly, any cash-out allocations, between CCP_{End+1} and the date when the new Residuals are determined, will not be reopened by the recalculated Contingency Imbalances.

Firstgas' Operating Procedure after the CC

When a CC has been terminated and Firstgas suffered a decrease in Linepack as a result of the CC, Firstgas will need to purchase Gas to restore the Linepack to pre-CC levels (including by buying Gas by way of "cash-out" under the MPOC). If the net payment Firstgas receives under the Regulations in respect of both the Firstgas and Maui Contingency Pools is either less or more than the cost of purchasing this replacement Gas, then Firstgas will issue an additional invoice or credit note to the BPP Trustee (as applicable), calculated by reference to that shortfall/surplus (*Additional Payment*).

The value of the Additional Payment shall be the difference between the net payment Firstgas receives for the non-Maui pipelines under the Regulations in respect of both the Firstgas and Maui Contingency Pools and the cost incurred by Firstgas in purchasing gas to restore the depleted Linepack.

The BPP Allocation day applicable to these Additional Payments shall be CCP_{End+1}.

Where Firstgas issues the BPP Trustee with an invoice in respect of an Additional Payment, the BPP Trustee shall make a payment out of the BPP Account to Firstgas for the amount of the invoice (*Invoiced Amount*). Each Shipper who has a negative Running Mismatch on the relevant Pipeline on the BPP Allocation Day shall pay into the BPP Account the proportion of the Invoiced Amount that such Shipper's negative Running Mismatch on that Pipeline on the BPP Allocation Day bears to the aggregate of all Shippers' and all Non-Code Shippers' negative Running Mismatch, in each case on that Pipeline and on the BPP Allocation Day.

Where Firstgas issues the BPP Trustee with a credit note in respect of an Additional Payment, the BPP Trustee shall invoice Firstgas for the amount of the credit note (*Credited Amount*). Each Shipper who has a positive Running Mismatch on the relevant Pipeline on the BPP Allocation Day shall be entitled to receive from the BPP Account the proportion of the Credited Amount that such Shipper's positive Running Mismatch bears to the aggregate of all Shippers' and all Non-Code Shippers' positive Running Mismatch, in each case on that Pipeline and on the BPP Allocation Day.

Invoices to be issued referred to above, and payments to be made into or out of the BPP Account referred to above, shall be issued and made in accordance with sections 15 and 16 of the GTC.

Appendix 8 – Critical Contingency Threshold Rationale

CCM Regulations Requirements

Schedule 1 of the Regulations sets out:

(a) a list of pipeline names that correspond to key parts of the transmission system;

(b) a minimum operating pressure range for each of those pipelines;

(c) both a minimum and maximum time before minimum operating pressure is reached on each of those pipelines; and

(d) a point of measurement tied to a particular location or gas gate on each of those pipelines.

Section 25(1)(a) of the Regulations lists the requirements Firstgas as TSO must consider when setting the respective pressure thresholds to be recorded in its CCMP. Namely, each selected threshold at the required locations must:

(a) be within the limits set out in Schedule 1;

(b) be specified in terms of the projected number of hours remaining before the minimum operating pressure is reached; and

(c) specify the minimum operating pressure.

Section 25(1)(a) states that the "minimum operation pressure" means the minimum pressure that is required to maintain the supply of gas across the relevant part or parts of the transmission system and to avoid disruptions of distribution systems connected to the transmission system. It is also noted that the minimum operation pressure must be measured at the points of the transmission system specified in Schedule 1.

General Principles

It is considered that in addition to the requirements set out in the CCM Regulations, there are a number of general principles that apply to the setting of the critical contingency pressure thresholds. Outlined below is a list of some of those general principles that Firstgas believes need to be considered when setting the pressure thresholds:

(a) The minimum operating pressures reflect the physical characteristics of the system and are unlikely to change significantly over time unless physical assets are changed / modified;

(b) Delivery Point station equipment is provided with sufficient inlet pressure to allow safe and satisfactory operation. Minimum pressures are to be selected to maintain satisfactory pressure differentials across the station equipment;

(c) Calculation of the trigger level in hours will depend on the nature of the load which would be curtailed if a critical contingency were triggered. For example, points supplying networks with large loads (that are relatively quick to curtail) will tend to require shorter lead times for curtailment than points supplying networks containing only smaller loads (which are more numerous and, therefore, take longer to curtail);

(d) Estimates of the total number of consumers in each curtailment band (0-7) and the sensitivity of the location on the transmission system;

(e) Thresholds need to be set at such a level that they are not going to be breached under normal or moderately abnormal operating conditions. Thresholds may be breached for short durations due to transient conditions. The details of such transient breaches are documented in section 5.2 of the CCMP;

(f) Non-linear line pack depletion and consequently pressure reduction occurring due to diurnal swing and curtailment actions taken in accordance with transmission codes;

(g) Historical data on actual system demands at different times of year;

(h) The use of compressors during the time preceding a Critical Contingency to maximise available line pack and pressure in the affected parts of the system.

Specific Thresholds

While there are a number of general principles that apply to the setting of any of the critical contingency pressure thresholds prescribed in Schedule 1, it is also important to assess each threshold on an individual basis due to the diversity of customers, load, geography and operating conditions across different parts of the transmission system. Firstgas has developed an internal process pertaining to the rationale for individual pressure thresholds. Firstgas will continue to revisit and update this process on a periodic basis, or if required due to material changes to the transmission system or operating parameters.

Transient System Conditions

Firstgas takes a number of steps to ensure that transient system conditions such as those set out in section 5.2 of the CCMP are appropriately managed. This ensures that such events do not result in either the unnecessary declaration of critical contingency events, or contribute to an undue delay in declaring a critical contingency when the circumstances warrant it. For example, Firstgas:

(a) periodically reviews the calculation algorithm within SCADA that monitors the pressure thresholds and ensures that the time sampling frequency is set appropriately to minimise the occurrence of “nuisance” alarms;

(b) has developed a procedure for Control Room Operators to follow when critical contingency thresholds alarm in SCADA for short durations; and

(c) maintains close communications with the CCO during potential critical contingency circumstances to ensure that all decisions are fully informed and based on the best available information.

Appendix 9 – Statements by Asset Owners

The affected asset owner who caused or contributed to a critical contingency (which may not be Firstgas) must after the curtailment of consumer installations in curtailment band 3, prepare a statement containing the information:

(a) a description of the damaged or failed asset and the cause of the damage or failure;

(b) what actions are being taken by the asset owner to effect repairs;

(c) the likely duration of each step of the repair process, including any testing and certification required before the asset can be restored to service;

(d) the asset owner's best estimate of the time at which the asset will be returned to service

(e) if the asset will be temporarily restored to a reduced level of service, information about the reduced capacity and likely duration of reduced capacity;

(f) an assessment of the likely accuracy of the times provided in paragraphs (c), (d) and (e) as well as a description of the identified risk factors and the likely effects that each would be expected to have on those times.

Appendix 10 – Additional Demand Curtailment & Restoration Information

Curtailment Bands

Curtailment band	Consumption in Tera Joules (TJ)	Description
0	N/A	Gas off taken for injection into gas storage
1	More than 15TJ per day	Consumers (excluding essential service providers) supplied directly from the transmission system who have an alternative fuel capability
2	More than 15TJ per day	Consumers (excluding essential service providers) supplied directly from the transmission system who do not have an alternative fuel capability
3	More than 10TJ per annum and up to 15TJ per day	Large industrial or commercial consumer installation
4	More than 250 GJ per annum and up to 10 TJ per annum	Medium-sized industrial or commercial consumer installation
5	More than 2TJ per annum	Any consumer installation (whether or not in bands 0-4) to the extent that an essential services designation applies to the installation
6	250 GJ or less per annum	Small commercial consumer installation
7	Any	Any consumer installation (whether or not in bands 0-6) to the extent that a critical care designation applies to the installation

Alternate Demand Restoration Arrangements

Some circumstances where alternative demand restoration arrangements may meet the objectives in Schedule 2 of the Regulations include:

(a) Partial restoration of consumers in curtailment bands 1, 2 and 3 ahead of, or at the same time as consumers in bands 4 - 7. This would allow large consumers to make preliminary preparations for a return to full production (for example performing a “cold start” on large plant). The individual circumstances and requirements of each large consumer would be considered by Firstgas in conjunction with the CCO.

(b) Full or partial restoration to electricity generation facilities classified as large consumers ahead of curtailment bands 3 - 7. This may be required in circumstances where the Electricity System Operator requests support from gas fired generation facilities to prevent widespread electricity outages. The decision to use this alternative restoration approach would be made in conjunction with the CCO and the Electricity System Operator.

(c) Consumers in bands 0, 1, 2 and 3 being restored ahead of consumers in bands 4 - 7. This could occur where technical and operational issues have resulted in a longer-term outage on a discrete section of the pipeline located downstream from the main gas supply, leaving some parties unaffected by the outage. The decision to use this alternative restoration approach would be made in conjunction with the CCO.

(d) In the event of non-specification gas having entered the system, demand to consumers in bands 0, 1, 2 and 3 may be restored ahead of bands 4 – 7 if the non-specification gas can be consumed safely and efficiently by these consumers. In these circumstances venting of large quantities of non-specification gas may be avoided.

The possible alternative arrangements above could better achieve the purpose of The Regulations by ensuring efficient use of gas, “minimising the net public cost”, and “ensuring the effective operational management of a critical contingency”. These are objectives specified in Schedule 2 of the Regulations.