



Natural Gas Supply Disruption Plan

**A sub plan under the
NSW State Emergency Management Plan**

Version 2.0

August 2019

AUTHORISATION

This plan is a sub plan of the NSW State Emergency Management Plan. This plan outlines the arrangements for the preparation for, response to, and recovery from, a natural gas supply incident in NSW. This plan replaces the Natural Gas Supply Disruption Response Sub Plan (2008).

This plan has been agreed by the Energy and Utility Services Functional Area Sub-committee and endorsed by the State Emergency Management Committee (SEMC 114) in accordance with the provisions of the *State Emergency and Rescue Management Act 1989* (as amended).

VERSION CONTROL

Proposals for amendments to content of the *Natural Gas Supply Disruption Plan* are to be forwarded to:

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DISTRIBUTION

This Plan is not distributed in hard copy.

Organisations and individuals should confirm they have the latest copy by checking the current version at www.emergency.nsw.gov.au.

ACKNOWLEDGEMENT OF COUNTRY

The NSW Government acknowledges the traditional custodians of the land and pays respect to Aboriginal people and Elders both past and present.

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Glossary

The following special terms used in the document are defined below.

AEMO	Australian Energy Market Operator. AEMO operates the National Electricity Market, Western Electricity Market, retail electricity market, Declared Wholesale Gas Market (and is gas transmission system operator), Short Term Trading Market (located at the Sydney, Adelaide and Brisbane hubs), Gas Supply Hubs and the Gas Bulletin Board.
Advisable Incident	An incident classification used by NGERAC. A natural gas incident that gives rise to an actual or potential shortfall in gas supplies to more than one jurisdiction (state/territory) or requires a multi-jurisdictional response.
CBRN	Chemical, Biological, Radiological, Nuclear
Combat agency	A term used under the NSW EMPLAN. A combat agency is an NSW agency identified as primarily responsible for controlling the response to an emergency.
Contingency gas	'Spare' or uncontracted gas that can be release into the gas market. Contingency gas is a STTM process managed by AEMO that seeks to address a possible gas supply shortfall by scheduling additional gas supplies and demand reductions by registered providers. Contingency gas provides pipeline operators and distributors with a means of avoiding, or at least minimising, the need to involuntarily curtail shippers supplying the hub or users at the hub.
Curtailement	The interruption of a customer's supply of gas at its delivery point. Curtailement occurs when a pipeline operator or distributor reduces the gas supply to a customer as part of its contractual arrangements to manage a gas shortfall.
Danger area	The area specified as the area affected by an emergency. A term used in the <i>State Emergency and Rescue Management Act 1989</i> .
DPIE	The NSW Department of Planning, Industry and Environment
DWGM	Declared Wholesale Gas Market. AEMO operates the DWGM in Victoria and enables competitive, dynamic trading based on injection offers into, and withdrawals bids from, the declared transmission system that links multiple interconnected pipelines, producers, storage, major users and retailers. In addition to operating the market AEMO also operates the gas transmission system in Victoria.
Emergency Services Organisations	Emergency Services Organisations perform a range of emergency management functions in NSW and include organisations such as the NSW Police Force, Fire & Rescue NSW, the NSW Rural Fire Service, Ambulance Service of NSW and NSW State Emergency Service. Emergency Services Organisations has the same meaning as in the EMPLAN.

EMPLAN	The NSW State Emergency Management Plan. This plan gives a strategic overview for emergency management in NSW. The EMPLAN exists under the <i>State Emergency and Rescue Management Act 1989</i> .
EOC	Emergency Operations Centre. A location where emergency response supporting operations are coordinated. Emergency Operations Centre has the same meaning as in the EMPLAN.
Emergency powers	For the purposes of this plan, these are powers used in the response to a natural gas incident, that require a proclamation or declaration under <i>Energy & Utilities Administration Act 1987</i> or <i>Essential Services Act 1988</i>
EOCON	Emergency Operations Controller. The EOCON roles are performed at state (SEOCON), regional (REOCON) and local (LEOCON) levels in NSW to deliver control or coordination of emergency management.
EUSFAC	Energy and Utility Services Functional Area Coordinator. This position is appointed to coordinate the support of the Energy and Utility Services Functional Area for emergency response and recovery operations. EUSFAC has the same meaning as in the EUSPLAN.
EUSPLAN	The Energy and Utility Services Functional Area Supporting Plan describes the support to be provided from and to the Energy and Utility Services sector in NSW during emergency operations. The EUSPLAN is prepared to support the EMPLAN.
Exclusion zone	An area surrounding the incident location that is evacuated and entry to this area is controlled for safety. This area is defined by the hazard and varies depending on the incident.
Functional Area	A term used under the EMPLAN to mean a category of services involved in the prevention of, preparation for, responses to or recovery from an emergency.
Gas transmission	The transport of gas at higher pressure, over longer distances, including across state-boundaries, and at larger quantities. Transmission pipelines typically operate at pressure ranges above 3,000kPag (435psig)
Gas distribution	The distribution of gas to customers through lower pressure networks over shorter distances and at smaller quantities. Distribution networks typically operate at pressures below 1,050kPag (152psig)
Hazardous material	Hazardous material means anything that, when produced, stored, moved, used or otherwise dealt with without adequate safeguards to prevent it from escaping, may cause injury, death or damage to property.
JCO	Jurisdictional Contact Officer. A jurisdictional officer nominated by a state or territory government to be the primary contact for an NGERAC Advisable Incident.
Line pack	The usable volume of gas that is stored within a gas pipeline.
LPG	Liquified Petroleum Gas. This is compressed propane and butane used for heating, cooking and in the automotive industry.

National Gas Rules	The National Gas Rules govern access to natural gas pipeline services and elements of broader natural gas markets. The Rules are made by the Australian Energy Market Commission under the National Gas Law and have the force of law.
Natural gas	Natural gas (Gas) as defined in Australian Standard AS 4564 2011 – <i>Specification for general purpose natural gas</i> . Natural Gas is primarily composed on methane and is considered a hazardous material.
Natural gas supply disruption	A curtailment or loss of supply of natural gas to customers. Supply disruptions can be of any size, from a small, local outage to an outage that affects large industry or whole towns or regions.
NGERAC	National Gas Emergency Response Advisory Committee. A national committee of JCOs from each jurisdiction (state/territory) and representatives from AEMO and the natural gas industry that advises governments on major national gas supply shortages impacting on multiple jurisdictions.
NGSO	Natural Gas System Operator. Under this plan, NGSOs are the operators of natural gas infrastructure between upstream production facilities and end users. This focusses on the transmission and distribution infrastructure but includes storage & import facilities within NSW, where applicable.
Participating Organisations	A term used under the EMPLAN. The government departments and councils, statutory authorities, volunteer organisations and other agencies who have given formal notice that they are willing to participate in emergency management response and recovery operations under the direction of the Controller of a combat agency, or Coordinator of a Functional Area, with the levels of resources or support as appropriate to the emergency operation.
PIFAC	A role described under the EMPLAN. Public Information Functional Area Coordinator coordinates the support of the Public Information Functional Area for emergency response and recovery operations.
Retailers	Natural gas retailers buy gas in bulk from wholesale markets and sell it to residential and business customers. Each gas retailer will supply gas at a cost which includes the cost of transporting natural gas through distribution networks.
SEOC	State Emergency Operations Centre. The location for the coordination of a state level emergency. The SEOC is established by the SEOCN.
SEOCN	State Emergency Operations Controller is responsible for a range of emergency operations arrangements as outlined in the EMPLAN.
Shippers	Shippers have contracts with transmission or distribution system owners for the transportation of natural gas. The shipper retains ownership of the natural gas while it is being transported or stored. A STTM shipper is defined in the National Gas Rules.

Significant natural gas incident	For the purposes of this plan, an incident which includes all the following; impacts equipment in the natural gas system, has resulted in the sustained curtailment or sustained loss of supply of natural gas to customers, poses an ongoing risk to the community and requires a coordinated, multi-agency response.
STTM	Short Term Trading Market. The STTM is a market-based wholesale gas balancing mechanism established at defined gas 'hubs' in Sydney, Adelaide and Brisbane. It uses bids, offers, and forecasts submitted by participants, and pipeline capacities, to determine schedules for deliveries from the pipelines which ship gas from producers to transmission users and the hubs. The Sydney hub includes the geographic areas of greater Sydney, including west to the Blue Mountains, north to Newcastle and Maitland, and south to Wollongong.
Supporting Organisations	A term used under the EMPLAN. The government departments and councils, statutory authorities, volunteer organisations and other specialist agencies who have indicated a willingness to participate and provide specialist support resources to a Combat Agency Controller or Functional Area Coordinator during emergency operations.
S&TR	The Safety and Technical Regulator is a team in the NSW Department of Planning, Industry & Environment responsible for the safety and technical requirements of the NGSO's under the Gas Supply Act, the Pipelines Act and subordinate legislation. The NGSO's have reporting and safety requirements that must be followed and supplied to the S&TR in accordance with these legislations.

1 Introduction

1.1 Aim

This plan aims to detail arrangements for the coordination and management of a significant natural gas incident in NSW. This plan should be read in conjunction with the Energy and Utility Services Functional Area Supporting Plan.

1.2 Scope

The NSW Natural Gas Supply Disruption Plan (the Plan) relates to the interconnected natural gas supply system in NSW and has been prepared to:

- Provide information about the natural gas system and the causes and consequences of a natural gas supply disruption.
- Outline relevant roles and responsibilities during a significant natural gas incident.
- Outline the principles for the efficient and safe restoration of natural gas supply.
- Outline the communication and notification arrangements between affected organisations and stakeholders, including the public.

The Plan may be one of several plans used in the response to an incident.

The Plan recognises that the responsibility and expertise to restore the supply of natural gas rests with privately owned and operated gas businesses in accordance with the economic and legislative frameworks that are in place.

The Plan does not:

- intend to replace existing emergency management arrangements, including those relating to hazardous materials or a multi-jurisdictional natural gas supply shortfall.
- include the procedures or arrangements a specific organisation will follow to adhere to the responsibilities outlined in this plan or other relevant plans and legislation.
- intend to relate to other pressurised gases, such as hydrogen or liquefied petroleum gas (LPG) that is produced and distributed in pressurized containers, in localised networks or used in vehicles.

1.3 Legislating environment

NSW has a legislative framework for the prevention, preparation, response and recovery of natural gas incidents, including;

- National Gas (NSW) Act 2008
- National Gas (NSW) Law
- Gas Supply Act 1996 (NSW)
- Pipelines Act 1967 (NSW)
- Energy and Utilities Administration Act 1987
- Essential Services Act 1988
- State Emergency and Rescue Management Act 1989

1.4 **Review & update**

The Plan will be reviewed in accordance with the requirements of the EMPLAN, at the direction of EUSFAC, or unless otherwise stated every 5 years. The application of the Plan during a significant natural gas incident, or during an exercise designed to test the Plan will guide EUSFAC's decision to review and update the Plan.

2 Background & context

2.1 The natural gas system

The natural gas system in eastern and southern Australia is an interconnected system between multiple jurisdictions (states & territories) and includes the equipment, systems and processes in place to manage and maintain the supply of natural gas from production facilities to end users. The interconnected nature of the natural gas system means that a natural gas supply shortfall in one jurisdiction has the potential to impact other jurisdictions.

The infrastructure that comprises the natural gas system in NSW is privately owned and operated. This infrastructure is managed with economic and legislative frameworks that, among other things, seek to minimize disruptions and facilitate prompt restoration of supply. The responsibility and expertise to restore natural gas supply rests with the privately owned and operated businesses.

The natural gas system is closely tied to the electricity system through electricity generation in Gas Powered Generators (GPG) and as such, an un-forecast supply shortfall in the gas system could have a cascading impact on the National Electricity Network (NEM). Similarly, an un-forecast increase in natural gas demand by GPGs can impact the natural gas system.

Market mechanisms exist to manage natural gas supply and demand imbalances and national arrangements exist for imbalances that affect, or have the potential to affect, multiple jurisdictions. These arrangements are mentioned in this plan but are not covered in detail.

Most of the natural gas consumed in NSW is produced in other states and NSW relies on an interconnected supply network to meet NSW natural gas demand.

The NSW gas system is connected with South Australia, Victoria, Queensland and the ACT. Three primary high-pressure transmission pipeline connections exist; one with South Australia via the Moomba to Sydney pipeline (MSP) and two with Victoria via the Victoria-Northern Interconnect (VNI) and the Eastern Gas Pipeline (EGP). Several distribution networks extend into NSW from across the Victoria, ACT and Queensland borders.



Figure 1: NSW natural gas transmission system, and interstate pipelines. Source: AEMO 2017 (Appendix 2 shows the complete image)

The NSW natural gas system is made up of the following sections (see Appendix 2 for an infographic):

- Gas production facilities (most of the gas consumed in NSW is produced outside NSW);
- Transmission pipelines from facilities in Queensland, South Australia, NSW and Victoria to towns and cities within NSW;
- Gas compressors at locations along a transmission pipeline route;
- Gas storage facilities and import terminals (where applicable);
- Pipeline facilities that provide custody transfer and pressure reduction;
- Pressure reduction stations between the transmission pipelines and distribution networks;
- Distribution networks including pressure regulating stations, primary and secondary trunk mains constructed of steel and plastic, and metering equipment; and
- Gas users including large and small industrial and commercial businesses as well as households.

A secure and resilient NSW natural gas supply is supported by:

- Transmission pipelines that are interconnected at strategic locations;
- Line pack - gas stored within the pipelines;
- System design that includes levels of redundancy;
- Gas storage facilities and import terminals (where applicable);
- An effective gas market capable of managing supply and demand imbalances;
- Preventative maintenance performed by infrastructure owners and operators; and
- Control and management systems and processes of infrastructure owners and operators.

2.2 Causes of a natural gas supply disruption

A supply disruption can occur as an isolated incident impacting a street, suburb, town or city, or as a broader event that impacts multiple towns, cities or regions.

A supply disruption can be a result of an incident within the natural gas system itself (e.g. equipment failure) or be the result of an external incident which impacts the system (e.g. fire, earthquake etc).

Without appropriate and prompt action, the gas pressure within the pipeline and/or distribution system can fall below the minimum level required for effective and safe operation and result in the complete loss of supply to the community.

For the purposes of this plan, a significant natural gas incident relates to incidents that include all the following:

- a. impact to equipment in the natural gas system;
- b. result in the sustained curtailment or sustained loss of supply to customers;
- c. pose an ongoing risk to the community; and
- d. require a coordinated, multi-agency response.

A sustained curtailment or a loss of supply to customers may be caused by:

- a significant reduction in forecast natural gas production, such as a production facility failure;
- failure or unavailability of natural gas infrastructure due to third party damage, maintenance, breakdown, mal-operation and/or leak/loss of containment;
- physical or cyber- attacks on the natural gas system and associated control systems;
- a significant increase in forecast natural gas demand, such as due to extreme weather events;
- an excursion in natural gas quality; or
- a combination of the above.

2.3 Consequences of a natural gas supply disruption

The NSW economy and community are heavy reliant on natural gas supply for areas such as chemical processing, electricity generation, food processing, heating and cooking. A supply disruption therefore has consequences for businesses, essential services and households.

The consequences of a supply disruption will vary greatly according to the location in the supply chain and type of incident, number and type of customers affected, the time of year, the day or week and the duration of the incident. For example, incidents on the production facilities or the main transmission pipelines into NSW will have a very broad impact, whereas infrastructure failure in parts of the distribution networks will usually result in a local disruption.

The time for restoration of supply can vary from hours to days or weeks depending on the nature, location, cause of the incident and the complexity of the repairs required. Most natural gas supply disruptions are of short duration and result in minimal impacts to households and businesses.

Business continuity plans play an important role in reducing the disturbance caused by a supply disruption. These plans need to be maintained by service providers, businesses and industries with a dependency on natural gas.

2.4 Restoring the natural gas supply

The restoration of gas supply follows a planned and coordinated process. This process may require one or more of the following activities (depending on the circumstances that led to the disruption):

- The Natural Gas System Operator (NGSO) may need to have the customers' gas piping isolated from the gas system to make the area safe. (Failure to access a customer's premise, such as in controlled premises or high-rise buildings, can result in additional delays to the gas restoration process).
- The NGSO systematically purges the system of air to mitigate the threat of an explosive air-gas mixture which may have accumulated within the system;
- The NGSO progressively introduces gas back into the system applying a pressure class hierarchy (higher pressures followed by lower pressures) based on the design of the system;
- The NGSO restores gas supply to each customer, which can include the re-light of customers' appliances.

NGSOs may not be able to restore individual sections of the system to supply essential services depending on equipment condition, location and the status of the gas system (e.g. due to insufficient supply pressure). The restoration process is managed according to the NGSOs gas system design and, operational and safety requirements. NGSOs make efforts to maintain and restore gas supply to essential services wherever possible.

Restoring the gas supply is often safer and simpler (i.e. does not require re-light) if positive supply pressure has been maintained in the system. NGSOs make efforts to maintain system pressure where possible and safe to do so.

3 Roles & Responsibilities

3.1 Minister for Energy

The Minister for Energy is responsible for advising, where necessary, the Governor, the Premier, the Minister for Emergency Services, other relevant NSW Government Ministers and the NSW Parliament on the extent and probable effects of any actual or probable loss of natural gas supply to NSW. The Minister will consider the advice of NGERAC as prescribed under the 'Memorandum of Understanding in Relation to National Gas Emergency Response Protocol, including use of Emergency Powers' (the MOU) and consult with their interstate counterparts (time permitting) prior to enacting emergency powers.

3.2 National Gas Emergency Response Advisory Committee (NGERAC)

NGERAC is guided by a Memorandum of Understanding between State, Territory and Commonwealth Governments. NGERAC advises the jurisdictions on efficient and effective responses to and management of, multi-jurisdictional natural gas supply shortages (including the use of Emergency Powers) consistent with maintaining the integrity of the gas supply system and with the intent of minimising significant consequences for the community.

3.3 NSW Jurisdictional Contact Officer (NSW JCO)

The NSW JCO is appointed as the primary contact point in NSW for an NGERAC Advisable Incident. The NSW JCO will communicate with the NSW S&TR, NSW NGSOs and industry representatives to obtain gas supply and demand information and other details in relation to an Advisable Incident. The NSW JCO will advise EUSFAC on the status of the multi-jurisdictional national gas system, including actions proposed/agreed by NGERAC.

3.4 Energy and Utility Services Functional Area Coordinator (EUSFAC)

The EUSFAC manages the provision of information relating to the potential or actual loss of natural gas supply in accordance with the Energy and Utility Services Functional Area Supporting Plan (EUSPLAN). This includes providing advice to the Local, Regional and State Emergency Operations Controllers, the NSW State Emergency Management Committee and State Emergency Operations Centre, relevant NSW Government Departments, Emergency Services Organisations, Functional Areas and Participating and Supporting Organisations.

EUSFAC seeks support and assistance (where applicable) from the Emergency Operations Controller at the local, regional or state level to manage the consequences of a significant natural gas incident.

3.5 Emergency Operations Controller (EOCON)

The EOCON at the local, regional and state level is responsible for consequence management in accordance with the arrangements of the EMPLAN and subordinate plans.

The Emergency Operations Centre (EOC) disseminates information to and from all Emergency Services Organisations and Functional Areas under the direction of the EOCON.

3.6 Natural Gas System Operators (NGSO)

NGSOs under this plan are the operators of natural gas infrastructure between production facilities and end users. This focusses on the transmission and distribution assets but includes production and storage facilities within NSW (where applicable).

Each NGSO is responsible for the management, restoration and the consequence effects within their section of the natural gas system. This management will be in accordance with, access arrangements, market arrangements, response and restoration procedures and legislation. NGSOs provide expert advice on the impacts and the steps needed to restore supply.

NGSOs participate in the local, regional and state level emergency management arrangements and EOC (where applicable), including providing information and advice to EUSFAC and the NSW JCO. NGSOs participate in NGERAC as industry members.

3.7 Natural Gas Safety and Technical Regulator (S&TR)

The NSW S&TR is part of DPIE and regulates natural gas businesses in accordance with NSW legislation. NSW S&TR receive communication from NGSO's who have reporting requirements for incidents that occur on natural gas assets. The S&TR will communicate with the EUSFAC, or delegate, to supply information obtained, any issues identified and support the safe return of supply.

3.8 Department of Planning, Industry and Environment (DPIE)

The Departments' role is to support the S&TR, EUSFAC and the NSW JCO by providing additional support staff when necessary, monitoring the progress of any supply disruption and providing advice to the Minister for Energy. DPIE also have support services, such as media teams, that provide advice and support to the Department during such incidents.

3.9 Australian Energy Market Operator (AEMO)

AEMO operates the natural gas Short-Term Trading Market (STTM) in the Sydney, Adelaide and Brisbane demand hubs, and the Declared Wholesale Gas Market (DWGM) in Victoria.

Under the National Gas Rules and STTM Procedures, AEMO as STTM market operator, is responsible for market processes in the event of a gas supply disruption impacting a STTM hub. Through the Contingency Gas process and other technical and operational constraints processes AEMO is informed of events by market participants. AEMO then sends market notices to STTM market participants and may hold conferences to inform them of the event.

AEMO manages the Gas Supply Guarantee process which is used to assess and confirm a potential gas supply shortfall for GPG units in the National Electricity Market, including processes to communicate with industry and to call for a response to a shortfall.

3.10 Natural Gas Retailers

Natural Gas retailers (Retailers) sell natural gas to customers and are market participants. Retailers are responsible for communication to customers regarding supply related issues as detailed in NGSO access arrangements. AEMO and NGSOs communicate with Retailers.

3.11 Emergency Services Organisations & Functional Areas

The emergency management roles and responsibilities of Emergency Services Organisations and Functional Areas are set out in the EMPLAN and subordinate plans.

All Emergency Services Organisations and Functional Areas should plan and prepare to support operations associated with response to and recovery from a significant natural gas incident, including supporting NGSOs (where applicable).

Emergency Services Organisations and Functional Areas may advise the EUSFAC and the NGSO representatives about sites or services requiring priority restoration of natural gas supply.

All Emergency Services Organisations and Functional Areas should be aware and observant of the condition of any gas equipment. Assets may have been damaged in the event that caused the incident or may have been damaged in the response effort.

- *Fire & Rescue NSW (FRNSW)*

The Fire & Rescue NSW provide assistance in line with the EMPLAN and subordinate plans. FRNSW is the combat agency for operational response to Hazardous material (Hazmat) emergencies (except as detailed in the NSW State Waters Marine Oil and Chemical Spill Contingency Plan). FRNSW maintains procedures, equipment, training and resources to command, detect, decontaminate and render safe people, property and areas affected by hazardous materials. These arrangements are detailed in the NSW Hazardous Materials CBRN Sub Plan.

- *NSW Police Force (NSWPF)*

The NSW Police Force provide assistance in line with the EMPLAN and subordinate plans. The NSWPF is the combat agency for acts of crime and terrorism within NSW. The NSWPF will work with relevant agencies to conduct investigations related to the deliberate release of hazardous materials. NSWPF will have overall responsibility for the coordination of the crime scenes resulting from Hazmat emergencies or imminent CBRN acts whether criminal or terrorism in nature.

NSWPF assist with the security of access to emergency incident areas and when requested, provide passage for Emergency Service Organisations and NGSO technicians to support the restoration of the natural gas system.

NSWPF provide the EUSFAC and NGSOs with advice and guidance regarding the security of natural gas infrastructure based on relevant intelligence.

3.12 Participating & Supporting Organisations

Participating and Supporting Organisations for the Energy and Utility Services Functional Area are identified in the EUSPLAN. The EUSPLAN outlines the agreements between EUSFAC and Participating and Supporting Organisations for participation in emergency response tasks, such as providing technical advice, human resources and equipment (where possible).

4 Prevention

Maintaining the natural gas supply is a long-term strategic activity that is shared between national and state governments, gas industry businesses, Emergency Services Organisations, Functional Areas and Participating and Supporting Organisations.

The EMPLAN and EUSPLAN outline the activities that NSW take in the prevention of energy emergencies, including natural gas. Such prevention activities include, but are not limited to, emergency risk management processes; providing input into legislation, codes, standards, guidelines and government policies; conducting hazard identification and identifying mitigating options.

4.1 Commonwealth Government, Agencies and Committees

As an interconnected, multi-jurisdictional system, the national gas system relies on both federal and state level prevention activities. Agencies that regulate, operate, oversee and enforce the wholesale and retail energy markets and networks, under national energy legislation and rules, form an important part of maintaining the supply of natural gas.

AEMO provides national planning and forecasting reports and information to support efficient decision-making and long-term investment in Australia's gas markets and gas infrastructure services, such as the annual Gas Statement of Opportunities. This information is used to support industry and government in their operation.

NGERAC provides advice to jurisdictions and the COAG Energy Council on the national gas system during emergencies.

4.2 NSW Government, Agencies and Committees

The NSW Government plays an ongoing role in ensuring energy security and maintaining natural gas supply through effective planning, advocacy and policy making, industry hazard and risk identification and mitigation, as well as participation in critical infrastructure protection programs.

The NSW Government oversee the technical and safety regulation of the NSW gas system according to the *NSW Gas Supply Act 1996* and *Pipelines Act 1967* and subordinate legislation.

4.3 NGSOs

NGSO operate their system within design limitations and perform necessary maintenance and capital works on their sections of the system to ensure ongoing system integrity and safety.

5 Preparedness

The EMPLAN and EUSPLAN outline the activities that NSW Emergency Services Organisations, Functional Areas, Participating and Supporting Organisations are required to take in the preparation of energy emergencies, including natural gas supply. Such preparation activities include planning, capability development, training, exercises, building community resilience and risk communication.

5.1 Community Resilience

Community resilience is enhanced through community members understanding the potential impacts of a loss of natural gas supply, recognizing the risk to themselves, their family and community and taking steps to protect themselves. In a similar way, business owners and industry recognising the risks to their operations, their customers and employees and taking steps to be prepared through business continuity planning.

Consistent with the National Strategy for Disaster Resilience released by the Council of Australian Governments, the community needs to share in the responsibility for preventing, preparing for, responding to and recovering from disasters. State-level all-hazards community engagement programs help community identify risks and prepare for events that may cause a loss of energy supply.

5.2 Critical Infrastructure Resilience

The NSW Government, in consultation with Government departments, local government, state owned and private infrastructure providers, have the NSW Critical Infrastructure Resilience Strategy. This state-wide strategy is an important part of maintaining a resilient energy supply system.

Additionally, NGSOs, including pipeline and network operators, have safety and regulatory reporting obligations to the NSW Government in relation to issues associated with their infrastructure.

5.3 Situational Awareness

The EUSFAC, and the NSW JCO is responsible for gathering intelligence and maintaining situational awareness with respect to any immediate threats to the natural gas supply in NSW.

The EUSFAC and the NSW JCO work closely with AEMO, the NSW S&TR and the NGSOs to maintain situational awareness.

AEMO publishes production and pipeline capacity and storage information on the publicly available Natural Gas Bulletin Board.

The EUSFAC provide up to date information to the SEOC on any threats and this information is disseminated to the Emergency Service Organisations and Functional Areas.

5.4 Training and Exercises

NGERAC is charged with reviewing and improving the emergency plans and procedures that apply during multi-jurisdictional gas supply shortages. NGERAC and AEMO conduct annual exercises that test these emergency arrangements and are attended by EUSFAC and the NSW JCO.

EUSFA plan for and conduct appropriate single jurisdiction exercises to rehearse implementation and effectiveness of this Plan and learnings from exercises are considered in updates to this Plan.

EUSFA assist other agencies and EUSFA Participating and Supporting Organisations to conduct exercises to rehearse implementation and effectiveness of related plans.

Each agency or organisation is responsible for training its own personnel to perform the roles and responsibilities outlined in this Plan. Training is available to Functional Areas and Emergency Services Organisations and their teams on the energy system and the impacts from an energy supply shortage.

EUSFA personnel receive appropriate emergency management training and are available for immediate mobilisation for emergency operations when required.

6 Response

6.1 Activation

This Plan is always active and may be active in conjunction with other plans where required.

The Plan focusses on single jurisdiction, significant natural gas incidents in NSW. These incidents extend beyond the capabilities of the NSW NGSOs to manage alone.

For the purposes of this plan, a significant natural gas incident relates to incidents in NSW that include all the following;

- a. impact to equipment in the natural gas system,
- b. result in the sustained curtailment or sustained loss of supply to customers,
- c. pose an ongoing risk to the community, and
- d. require a coordinated, multi-agency response.

6.2 Concept of operations

The response is intended to ensure that suitable actions are taken to reduce the impact to the community and protect the safety of both members of the public and emergency responders in the impacted area.

Incidents that impact the natural gas supply may or may not involve a gas leak (loss of containment). A loss of containment of gas will follow the NSW hazardous material response arrangements. Once the hazardous material risks have been managed the natural gas incident response continues to address the loss of supply.

During a loss of containment incident, at the operational level Emergency Service Organisations will respond and may establish forward commands and site control. The site controller will coordinate response activities within exclusion zones and danger areas. These activities will focus on reducing the impact of the emergency and take appropriate actions to protect life and property. NGSO's establish forward commands, take appropriate actions to assess and make-safe the natural gas system and provide expert advice at the site control level and at Emergency Operations Centres (EOC) respectively.

During a loss of supply incident, at the operational level NGSOs respond and take appropriate actions to manage the loss of supply incident in their section of the system. NGSOs establish forward commands, assess and make-safe the natural gas system and develop a restoration plan for the impacted section of the gas system.

At the coordination level for all incidents, activities are supported by the establishment of EOCs, as determined by the EOCON. A Local EOC is supported at Regional and State levels by the establishment of Regional EOC and State EOC as required. EUSFA support the provision of information between the NGSO and emergency services, as well as provide advice.

Organisations respond to either site control or EOC by the local activation arrangements. Emergency Service Organisations, Functional Areas, Participating and Supporting Organisations provide liaison officers as required. Information to provide situational awareness is provided from the incident site/s through to the Local, Regional and State EOC's.

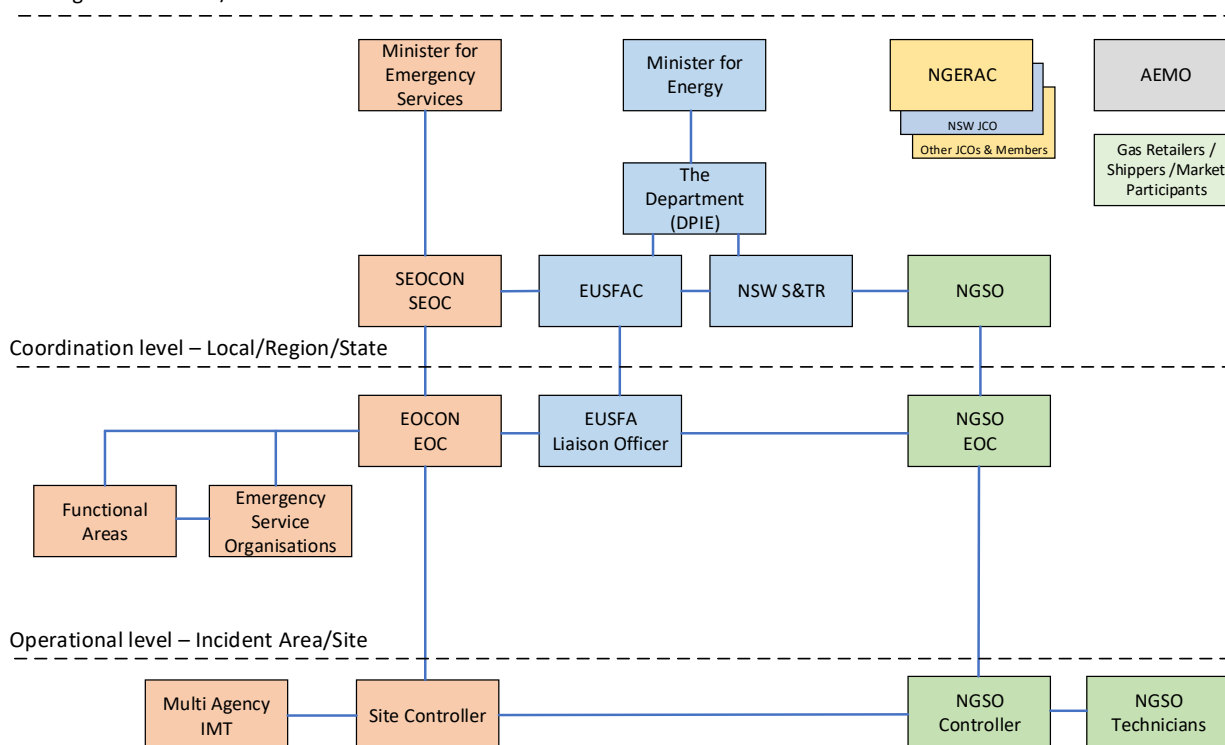
Decision making for response activities and consequences outside the exclusion zone or danger area requires accurate situational awareness, including environmental and meteorological forecasting and assessment of the risk to public health and wellbeing. Where possible, risk management and resource allocations are applied locally and augmented by higher level support.

The response strategies implemented need to be supported by public messaging to provide advice for public action as well as providing public confidence.

6.3 Response coordination arrangements

Response Coordination Arrangements Diagram

Strategic level – State/Federal



Natural Gas Supply Disruption Response Plan

6.4 Principles for resolving natural gas supply disruptions

Natural gas supply imbalances are managed at the coordination and strategic level using the following principles.

- *Market Mechanisms*

Market mechanisms are the first option for managing gas supply imbalances. Retailers, shippers and other market participants adjust their supply and demand to cover for any imbalance through market mechanisms, such as those of the STTM, DWGM and other agreements in place. These adjustments include the use of available line pack within pipelines.

AEMO as STTM market operator, is responsible for the market mechanisms in the event of a gas supply disruption impacting a STTM hub. Through the Contingency Gas process and other

technical and operational constraints processes AEMO is informed of events by market participants. AEMO then sends market notices to STTM market participants and may hold conferences to inform them of the event. The detailed arrangements for these market mechanisms are outlined in the National Gas Rules and the STTM Procedures.

Where there is a gas supply imbalance impacting GPG, AEMO uses the Gas Supply Guarantee process, similar to the Contingency Gas process, to assess a gas supply shortfall for GPG and call for a response to a shortfall.

For a gas supply imbalance not impacting the STTM Sydney Hub or GPG, such as regional NSW, AEMO has no operational involvement and other mechanisms are pursued. These include access arrangements between distribution network operators and transmission pipeline operators and business-to-business commercial agreements.

- *Natural Gas Load Shedding (Curtailment)*

The relevant NGSOs instruct reductions in demand from customers in accordance with the natural gas load shedding guidelines, the network access arrangements and relevant market rules and contracts. This level of intervention by NGSOs may be undertaken when market mechanisms are unable to restore the supply imbalance as well as in a timely manner to protect the safety and integrity of their section of the system, in accordance with NSW legislation.

Wherever possible and safe to do so, positive pressure is maintained in the gas system and the withdrawal of gas within the pipeline and distribution system is controlled to permit prompt restart when supply is restored.

NGSOs notify the NSW S&TR of load shedding in accordance with NSW legislation.

- *Government Intervention*

The NSW Government, based on advice, uses emergency powers under relevant Acts to make mandatory reductions in natural gas demand. Government intervention is initiated as a last resort when natural gas supply is, or is likely to become, less than is sufficient for the reasonable requirements of the community.

The Acts outlining NSW government emergency powers that may influence the supply and demand of natural gas include:

- The Energy and Utilities Administration Act 1987
- The Essential Service Act 1988

6.5 Operational communication & notifications

Communication protocols are designed to ensure the consistent and accurate transmission of information between affected jurisdictions, organisations, the Government, the media and the public of NSW.

Communication between NSW and other jurisdictions during significant natural gas incidents will be in accordance with the NGERAC communication arrangements. Communication within the NSW jurisdiction will be in accordance with the emergency management arrangements outlined in the EMPLAN, the EUSPLAN and this Plan. Localised incidents and operational issues that can be dealt with at a local level do not require additional notifications and are considered part of normal business.

The NSW S&TR, the NSW JCO and EUSFAC are in regular communication during all incidents to maintain situational awareness and share relevant information.

Incidents that require the use of market mechanisms are communicated by the market operator in accordance with market communication and notification protocols.

Incidents that require NGSO load shedding (curtailment) are communicated to the affected customers and community by the NGSO and Retailers according to their regulatory requirements, market requirements and access arrangements. The NGSO will inform the NSW S&TR of the loss of natural gas supply or curtailment event in accordance with legislative requirements. Information provided to the S&TR includes:

- Nature of the event
- Location in the gas system
- Time the event occurred
- Likely effect on the quantity of the gas available
- Number of customers impacted, and
- Estimated time to restore to normal supplies

Incidents that require NSW Government intervention are communicated by the NSW government authority according to the conditions set out in the relevant Act.

The NSW JCO and EUSFAC may contact the NGSO, NGERAC and AEMO directly to source additional gas information for operational purposes.

6.6 Public information

Keeping the public updated and informed is critical to the success of the response and recovery phase.

The Public Information Functional Area Coordinator (PIFAC) is responsible for coordinating public information and media releases that relate to the incident, and for ensuring that consistent messages from Emergency Services Organisations, Functional Areas and Supporting and Participating Organisations are relayed to the NSW public. PIFAC considers the need for a Public Information Coordination Centre under the direction of the SEOCON.

The PIFAC will prepare communications under the direction of the EOCON, with the assistance of EUSFAC and the DPIE media team as required, to enable immediate notification to the public of the incident and other relevant advice. The DPIE media team ensures consistency of public information across DPIE and coordinates with the PIFAC and EUSFAC.

NGSOs and Retailers provide safety information to customers and information on the nature and estimated duration of natural gas supply disruptions either via 24hour telephone numbers, websites and/or social media, in accordance with legislative requirements.

6.7 Public relations and media during emergency powers

Media or public enquires relating to the exercise of natural gas emergency powers by the NSW Government under the Energy & Utilities Administration Act 1989 or Essential Services Act 1988 should be directed to any NSW government authority identified in the proclamation or regulation.

The EUSFAC and DPIE provide appropriate briefings and review statements for the NSW government authority to ensure accuracy and consistency with advice received from NGERAC, AEMO and NGSOs.

All organisations will continue to comply with their statutory reporting requirements and provide safety and related information to customers and the community.

6.8 Stand Down

The NSW S&TR, NGSO and AEMO will determine when the natural gas system is sufficiently stable and secure and will communicate this to their stakeholders.

The EOCON, in consultation with EUSFAC, will stand down the response phase and advise of debrief arrangements, when they determine that the consequences of the incident have been sufficiently managed, in accordance with the EMPLAN.

7 Recovery

The NSW Recovery Plan outlines the strategic intent, responsibilities, authorities and the mechanisms for disaster recovery in NSW.

Responsibility for coordination of recovery operations in NSW rests with State Emergency Recovery Coordinator (SERCON), or as otherwise specified in specific emergency plans.

A recovery committee may be formed for strategic delivery of services. Depending on the scale of the recovery, the EUSFAC representative will form part of the recovery committee.

When formal recovery processes are established, the essential tasks for the EUSFAC representative include:

- Facilitate the exchange of information on the customers impacted to inform recovery operations; and
- Facilitate the recovery of natural gas infrastructure where this cannot be achieved in the response phase; and
- Conduct debriefs for relevant Energy and Utility Services Participating and Supporting Organisations once operations have concluded.

8 References

1. NSW State Emergency Management Plan (December 2018)
2. NSW Energy and Utility Services Supporting Plan (October 2017)
3. NSW Electricity Supply Emergency Sub Plan (August 2018)
4. Gas Supply Act 1996 (NSW)
5. Pipelines Act 1967 (NSW)
6. Energy and Utilities Administration Act 1987 (NSW)
7. Essential Services Act 1988 (NSW)
8. State Emergency and Rescue Management Act 1989 (NSW)
9. NSW Hazardous Materials CBRN Sub Plan (June 2019)
10. NGERAC, 'Memorandum of Understanding in Relation to National Gas Emergency Response Protocol, including use of Emergency Powers' (November 2016)
11. Overview of the Short-Term Trading Market for Natural Gas, AEMO (December 2011)
12. National Strategy for Disaster Resilience, Council of Australian Governments (February 2011)
13. NSW Critical Infrastructure Resilience Strategy 2018, NSW Government

9 Appendix 1

Summaries from relevant NSW Legislation

The summaries below cover specific sections of NSW Acts that are noteworthy for significant natural gas incidents and are provided as a prompt for further reading of the specific Act to obtain the full context.

9.1 Gas Supply Act 1996

The *Gas Supply Act 1996* and subordinate legislation requires the NGSO's ensure a safe gas supply. It allows NGSO's to restrict or stop supply to customers and conduct emergency activities.

Section 53 (b) allows the network operator to interrupt supply for such purpose as the network operator considers necessary for the safe and efficient operation of its network.

Clause 10 in the Gas Supply (Safety and Network Management) Regulation allows the network operator to disconnect supply to a customer if supply is dangerous to life, health or property.

9.2 Pipelines Act 1967

The *Pipelines Act 1967* and subordinate legislation allows NGSO's to react in emergency situations for the safety of the pipeline.

Sections 24 of the Pipelines Act allows the Licensee to cease to operate the pipeline in an emergency in which there is likelihood of loss or injury and allows the stopping of the product being transported. Clause 30 of the Pipelines Regulation covers the reporting events requiring carrying out of emergency procedures and unplanned disruptions.

9.3 Energy and Utilities Administration Act 1987 (Energy other than electricity)

The *Energy and Utilities Administration Act 1987* objectives are extensive, including promoting the safe and effective utilisation of energy in the state.

Part 6 (Sections 23-34) of the Act outline the emergency provisions for energy or energy resources other than electricity. Sections 24 provides that the Governor may issue a proclamation where it appears to them that the available supply of a form of energy or energy resource other than electricity is or is likely to become less than is sufficient for the reasonable requirements of the community.

Section 25 empowers the Governor to make regulations while the proclamation is in force with respect to certain matters including the controlling, directing, restricting or prohibiting the sale, supply, use or consumption of the form of energy. This direction may apply throughout the state or any specified part of the state.

9.4 **Essential Services Act 1988 (All energy)**

The *Essential Services Act 1988* defines, provides for entry and inspection of places used for provision of essential services in the state, disruption to essential services, and contains provisions regarding certain industrial actions concerning essential services.

Part 1 outlines that the production, supply or distribution of natural gas is considered an essential service under section 4. Part 2 outlines provisions for disruption to an essential service.

Section 8 provides that whenever it appears to the Governor that from any cause the provision of an essential service is, or is likely to, for any period meet a number of conditions (81(a)(b)(c)(d)), the Governor may declare that the essential service is one in respect of which regulations may be made under section 9. Section 9 allows the Governor to make a regulation with respect to various matters including regulating, controlling, directing, restricting or prohibiting provision of the essential service and activities of any person involved in the provision of the essential service.

When it appears to the Governor, in addition to the above matters, that an emergency exists or is likely to exist in relation to the essential service, the Governor may, by order in writing, declare a state of emergency in relation to the essential service. Section 11 provides that if such an order is in force, the Minister may give certain types of directions, including directions to regulate, control, direct, restrict or prohibit the provision of the essential service and activities of any person involved in the provision of the essential service. This direction may apply throughout the state or any specified part of the state, for a period nominated by the Minister.

9.5 **State Emergency and Rescue Management Act 1989**

The *State Emergency and Rescue Management Act 1989* is extensive and provides the framework for emergency management activities in the state including identifying key roles and responsibilities, requirements for declaring a state of emergency, specific protections for volunteer workers, and other powers.

Part 2 Division 4 outline provisions for a state of emergency. Section 33 provides that if the Premier is satisfied that an emergency (as defined in the Act) constitutes a significant and widespread danger to life or property in New South Wales, the Premier may, by order in writing, declare that a state of emergency exists in the whole, or in any specified part or parts, of New South Wales in relation to that emergency.

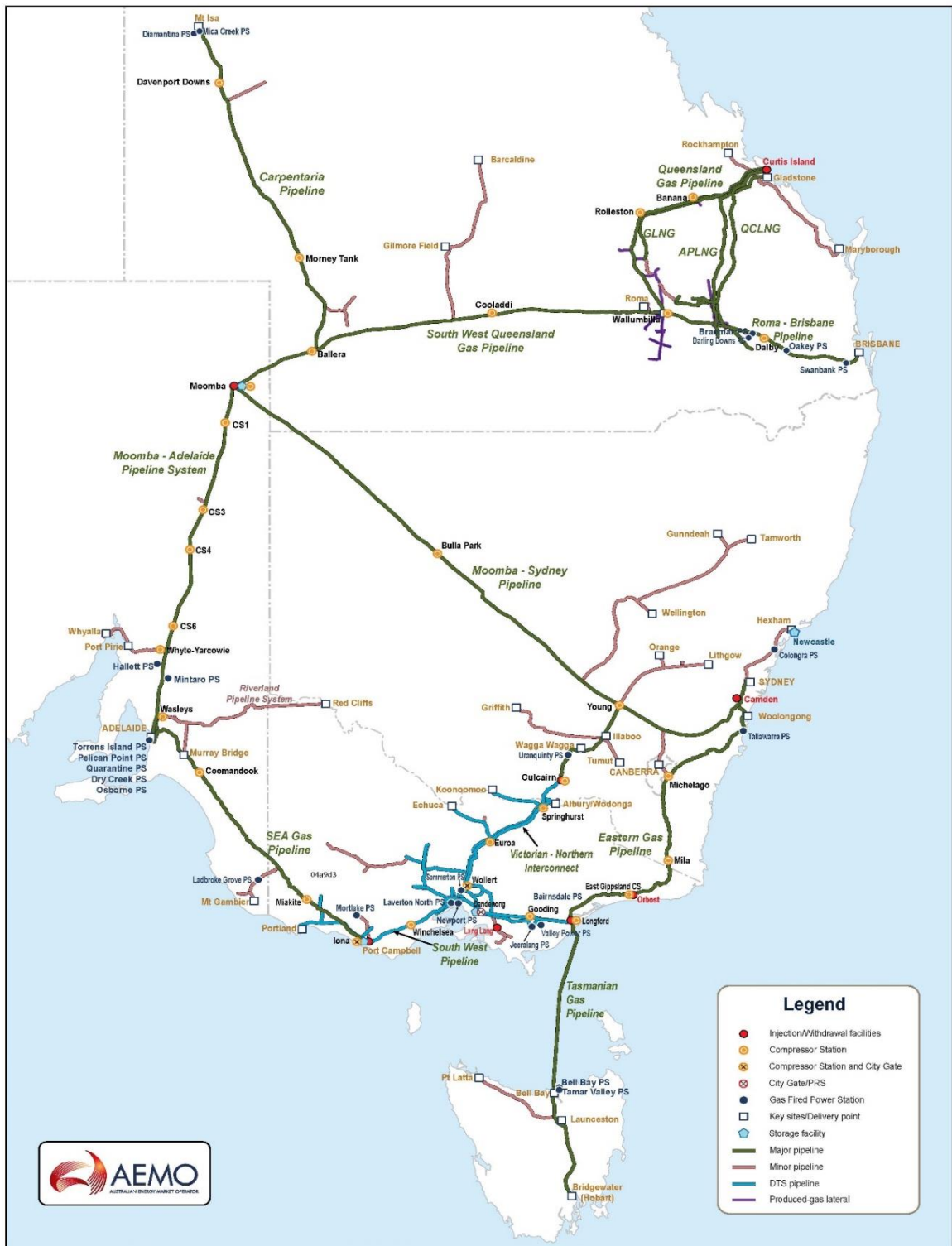
Powers available to the Minister during a state of emergency include those set out in section 37A, which allow the Minister to direct or authorise an emergency services officer to direct, the doing of certain safety measures including measures relating to shutting off or disconnecting the supply of natural gas in a danger area(37A (1)(d) and (e)).

Part 4 contains miscellaneous provisions. Section 61 outlines that a Directing Officer (which includes the SEOCON) may direct, or authorise a police officer to direct, the doing of certain safety measures in the response to an emergency including measure relating to shutting off or disconnecting the supply of natural gas in a danger area(61(1)(d) and (e)). A police officer exercising a function under section 61 may do so with the aid of, and be accompanied by, such assistants as the police officer considers necessary.

10 Appendix 2

10.1 East coast gas supply infrastructure

Source: AEMO 2017



10.2 Gas supply chain

Source: AER State of Energy Market Report December 2018

