VENCorp Response to MCE National Gas Emergency Protocol Working Group Options Paper – February 2005

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Introduction

This submission is made in response to the Ministerial Council on Energy's (MCE) "National Gas Emergency Response Protocol Options Paper", February 2005.

As the body responsible for the operation of the Victorian Principal Gas Transmission System and the Victorian gas spot market, VENCorp welcomes the MCE's initiative in seeking to establish a National Gas Emergency Response Protocol.

Following previous consultation, the working group identified three (3) options for further discussion which were described in the Options Paper:

- Lead Agency;
- Permanent Committee; and
- Central Agency.

This response has been structured on the basis of addressing each of the key issues identified by the working group and reviewing each of the options.

Executive Summary

VENCorp believes that while none of the three options is satisfactory alone, a combination of features of the 'Committee' and 'Central Agency' options will provide the most effective and efficient outcome for managing emergencies across multiple jurisdictions.

VENCorp supports a permanent committee made up of jurisdictional representatives, supported by a permanent central secretariat preferably provided by an existing department or agency.

The permanent committee would provide the strategic direction and policies required for managing a national gas emergency. The secretariat function would be extended to provide the resources for establishing necessary systems and processes in the first instance and then provide ongoing information management, planning, preparation and coordination functions including that required during an emergency. Details of these activities are provided in this paper.

VENCorp believes that this hybrid of the 'Committee' and 'Central Agency' options would ensure ownership by all jurisdictions in the development of emergency protocols and management of supply and demand during an emergency, while providing an adequate resource to ensure the mechanisms for preparing for and managing an emergency are established.

Review of Key Issues

The Ministerial Council of Energy released the Options Paper for the National Gas Emergency Protocol in February 2005. This paper discussed the key issues identified by the working group and presented three options for a management framework.

VENCorp has reviewed these key issues discussed in the Options Paper and then assesses how well these are addressed under the options. The key issues are:

1. Emergency Response Coordination;
2. Government Intervention;
3. Information Provision Requirements;
4. Role of Government;
5. Role of Market;
6. Gas Sharing;
7. Communications protocol;
8. Responsibility for Process Development;
9. Costs and Benefits; and
10. Key Risks.

1. Emergency Response Coordination

VENCorp's knowledge of, and experience in, managing significant emergencies has shown that good emergency response requires established and tested processes, adequate resources, and well-trained staff.

In order to manage an emergency effectively, time and resources need to be invested in emergency preparation:

- Pre-planning
- Scenario planning
- Developing processes including communications protocols;
- Conducting emergency exercises;
- Maintaining contact lists;
- Developing and managing information systems; and so forth.

There are a number of critical tasks that must be managed for the emergency management process to work successfully. The importance of and effort in these tasks should not be underestimated. These tasks include:

a) Maintenance of up to date contact information for the various jurisdictional representatives, pipeline operators, producer and storage operators, distribution and retail businesses and end user representatives.
b) Establishment of arrangements to manage & coordinate supply, storage and multiple pipeline operators across the jurisdictions and within jurisdictions. (For example, Victoria has five separate gas transmission pipeline operators, some of which own assets, which cross state borders. Other states also have multiple pipeline owners and pipelines, which cross state borders).
c) Maintenance and operation of a facility to receive and provide shared information. (The information requirements for successful management of an emergency should be the same regardless of which option is selected. The information to model adequately the supply / demand requirements of the interconnected gas transmission system will require both standing and dynamic data).
d) Development and maintenance of the capability and skills to conduct supply - demand analysis for the interconnected gas transmission systems taking account of capacities available on interconnecting pipelines, storage inventory and 'useable' linepack.
e) Retention of emergency management skills and knowledge over a long period of time recognising that national emergencies will occur very rarely.

The value of pre-planning and preparation in providing an effective response during an emergency cannot be understated. Up to date contact lists and communication protocols to disseminate notices and information, together with processes to establish the necessary teams, are the foundation that underlie good emergency management.

2. Government Intervention

2.1 Market Response

VENCorp supports the position, put forward by the Options Paper, that the protocol should maximize the opportunity for a market-driven response before an emergency is declared or government intervention becomes necessary.

Commercial interruption is an example of a market response that could contribute effectively provided that the contractual arrangements in terms of price and gas and other relevant conditions are agreed, established and known well in advance of an emergency. However, intervention can only be minimised if this information, at least in terms of the expected demand side response, is known by the relevant planning body operating under the new structure.

2.2 Triggers and Escalation

To provide clarity and transparency of action, there needs to be clear processes and triggers to escalate an incident from one that may affect a single jurisdiction to one that may impact multiple jurisdictions. Common levels of emergency escalation would need to be implemented across pipelines and jurisdictions to ensure an orderly process, allowing the local operators and

jurisdictions to manage an escalation of an emergency and allowing for a market response before intervention was required.

2.3 Government responses

Processes should be developed that broadly describe the types of responses that may be taken by governments once the protocols are enacted.

2.4 Resolution of Commercial Issues

Processes should be developed that broadly describe how any commercial issues are to be resolved once the protocols are enacted.

3. Information Provision Requirements

3.1 Information Required To Establish Triggers

Regardless of which option is selected, it is necessary to identify the various triggers for enacting the emergency protocol. It is also necessary to establish an ongoing flow of system planning data and pre-assessment as a normal course of business to assess the impacts of any incidents or determine if / when emergency protocol triggers are being reached.

This data is required to identify the necessary triggers to enact the emergency protocols as well as manage the ongoing requirements of an emergency. It is required in two forms - static and dynamic data.

3.2 Static Data

The static data on system and market conditions could be made available through the publication of annual planning statements or reports, such as the VENCorp 'Annual Gas Planning Report' and the NEMMCO 'Annual National Transmission Statement'. Such data could be updated on a quarterly basis or as required to reflect any unplanned material changes to the supply, demand or capacity outlook.

3.3 Dynamic Data

Dynamic data is data that varies from day to day and within the day. Data is required on the daily and within-day operation of these facilities, including daily supply and pipeline capacity (accounting for any planned outages due maintenance activities), demand forecasts (possibly including daily and hourly profiles), storage and useable linepack quantities. Whether this information is made public or remains confidential to the body responsible for monitoring it, systems and processes must be in place to collect and manage this information on an ongoing basis so that it is available during an emergency.

The provision of this information is also required to monitor system incidents that can have a flow on effect. This will provide industry and government with sufficient information to take account of market-based responses to best effect and to assist all parties in determining when the triggers have been reached to enact the emergency protocols.

3.4 Central Coordination Function

Given the number of parties involved in providing data and the need to consolidate that information into useful planning information, it would be more efficient and effective to have a single party responsible for managing the information protocols and interfaces and ensuring the ongoing collection and assessment of information, rather than multiple parties.

For example, during the incident at Moomba in January 2004, the inter-governmental taskforce managing the event was seriously impeded by the lack of ready access to supply / demand details, pipeline capacities, linepack quantities, operating limits, storage levels, production capabilities and so on.

The Moomba emergency has shown that it can be extremely difficult and time consuming to establish the appropriate processes and have the necessary information captured in a timely manner to allow a supply / demand analysis to be conducted to direct the decisions being made under the National Emergency Protocol.

3.5 National Gas Market

The ongoing requirements for information provision should dovetail with the option of developing a National Wholesale Market for gas. The 'city gate' or 'hub based' model, as proposed in the report to the MCE as options for the development of the Australian Wholesale Gas Market, with a requirement for a bulletin board for daily information could fit suitably with emergency planning information requirements.

4. Role of Government

In regards to the role of government, VENCorp believes that the procedures used to identify significant incidents must be developed and understood by all jurisdictions as part of the development of the protocol. While there may be triggers that are specific to a jurisdiction, these should be made publicly available to ensure transparency.

VENCorp supports the development of an emergency management process that would be similar to the NEM process. In this case, the party managing the emergency would request other jurisdictions to provide support under the terms of the Protocol.

In this way, the responding jurisdiction(s) would be able to determine and enact measures of their own choice to provide the required support under the Protocol. See section 6 on Gas Sharing below.

5. Role of Market Participant and End-users

5.1 Notification

Under all options it is up to the local gas system operator to notify all parties. It is not realistic to require local system operators to have access to up-to-date contact lists, including contacts for other jurisdictions. More realistically, the operator should need to notify only the local jurisdictional authorities and the committee or the central agency, as the case may be. The committee or central agency could then escalate as required and notify all the relevant parties

5.2 Escalation and trigger process

Once the necessary triggers for enacting the Protocol are established, the jurisdictions would be required to be a party to an agreed process to ensure that preliminary advice of an incident is provided by their local gas system operator(s) to enable potential escalation of the incident to the Committee.

There will need to be a process by which this preliminary advice is assessed by suitably qualified people and passed onto the group responsible for managing the emergency. Given that these incidents can happen at any time, this process should allow for assessment and monitoring to be completed outside of business hours.

6. Gas Sharing

VENCorp believes that the concept of "sharing the pain" does not align or is not necessarily consistent with the ability of one or more jurisdictions to support another during a gas emergency.

The ability to provide supply support to another jurisdiction during an emergency event will often be limited to the capacity available on the interconnecting pipelines such as SEA Gas and the Eastern Gas Pipeline or spare capacity on the major supply pipelines such as the Moomba-Sydney or the Moomba-Adelaide Pipeline.

VENCorp believes that it is better to consider national supply / demand balance requirements taking account of the additional supply capability potentially available via interconnected pipelines as a first step before consideration of curtailment responses in supporting jurisdictions.

In many scenarios it may be possible for one or more supporting jurisdiction(s) to provide the maximum supply support (e.g. maximizing exports, minimizing imports) through the interconnecting pipelines without any rationing or curtailment required in the supporting jurisdiction(s). In some cases, a market response may achieve the required exports in the supporting jurisdictions while curtailment may still be required in the jurisdiction being supported.

7. Curtailment

7.1 National Curtailment Tables

Each jurisdiction should have its own curtailment tables based on common principles but which may vary taking account of local factors. These jurisdictional curtailment tables would be

produced by the responsible parties and made available to the central coordination body to comprise the proposed "National Curtailment Tables".
The question is: *How are these Tables to be used ?*

The proposal suggests a "sharing the pain" approach that uses aligned levels within the Tables across the jurisdictions. However, curtailment in supporting jurisdictions need only be considered to the extent that such curtailment would be necessary to support exports. This is expected to be unlikely, or at least quite limited, under most scenarios.

The likely outcome is that the affected jurisdiction(s) will tend to bear more of the pain (greater curtailment) simply because of the limited capacity of interconnects and the need for a timely demand side response. The Curtailment Tables in the supporting jurisdictions become relevant if / when some level of curtailment is required. However, this will not be to the same degree in all jurisdictions.

VENCorp supports the notion of National Curtailment Tables to the extent that the central coordination function will need to be familiar with these and refer to these in order to provide advice to the group managing the emergency on relative level of curtailment that may be required within each jurisdictions. However, once the supply-demand imbalance for each jurisdiction is determined taking account of optimising interconnect supplies and other gas sharing arrangements, the authority in each jurisdiction would then take action to achieve the desired targets.

*7.2 **National Oil Supplies Emergency Committee** (NOSEC) Model*

VENCorp believes that the NOSEC model is not appropriate for national gas emergency management because of fundamental differences in transportation and potential control of supply. VENCorp understands that the NOSEC model is based on a committee meeting infrequently and during a crisis. Management and planning for gas emergencies requires more continuous activity and infrastructure.

The NOSEC model of curtailment is based on a fuel source that is transported from relatively few production points (e.g. refineries) to a large number of outlets (petrol stations) across Australia by many trucks. Fuel can be rationed effectively by shipping (trucking) only to key distribution points for provision to selected users with prioritised requirements.

In contrast, gas is shipped through fixed transmission pipelines to 'uncontrollable' load centres. Curtailment of gas load predominantly relies on compliance of end users to curtailment directions by Government. The NOSEC model does not appear to relate well to either gas transportation or gas rationing.

7.3 National Electricity Market (NEM) Model

The NEM emergency model uses rolling curtailment (black-outs) to share pain in a controlled fashion. However, this approach cannot be applied to gas distribution networks. Complete gas

curtailment can create hazardous situations and potentially shut down gas distribution networks[1] for weeks or months.

The 1998 Longford experience shows that the only way curtailment to this level can be achieved is by 'house to house' turn-offs on a mass scale, taking two days or more to achieve depending on resources. The turn-on process is considerably slower.

However, the NEM curtailment process of identifying a required amount of load reduction in each jurisdiction taking account of interconnect capabilities and having the jurisdiction provide that load reduction could be applied to a gas emergency.

In a national gas emergency, the required import / export changes required in each jurisdiction could be determined by the central coordination body taking account of interconnect capacities, gas sharing from common sources and of potential curtailment requirements (if any) in supporting jurisdictions. Provision of additional gas for export or curtailment of load is then more effectively managed at the jurisdiction / system operator end.

7.4 Rationing & Recovery

The options do not discuss rationing and recovery in any detail. Though of less importance than the actions taken on the first day or two of an emergency to secure the system(s), these aspects should to be addressed for completeness.

Given an emergency, the first priority is to ensure system security in each of the jurisdictions. This is normally achieved by obtaining additional supply and through load curtailment (voluntary or involuntary). Once systems are secured and assuming the emergency situation will continue for some days or weeks there is then time to implement a gas rationing strategy if some excess gas is available, depending on the degree of load reduction achieved.

Rationing is best managed at the jurisdictional level where essential and critical services including hospitals and then industry sectors such as food / meat / milk / bread etc have been prioritised by the jurisdictional government.

Lastly, the process of recovery also needs to be coordinated to ensure that supply and demand is managed as gas supplies are gradually restored. Bringing on a very large amount of load at once may create problems in some cases, as experienced in the Longford crisis, and requires extensive planning.. An agreed approach to the restoration of supply should be developed as quickly as possible to provide equity to end-users across the jurisdictions.

7.5 Supply / Demand Analysis

With interconnection of transmission pipes South East Australia is now a network, rather than a set of independent transmission services dependent on the limitations at the interconnect points. Most states have more than one pipeline supplying gas to load centres. The ability to flow additional gas into an affected area will depend on the supply / demand requirements

[1] Eg hazards due to air ingress in low-pressure distribution pipes could potentially result in the need to purge last network areas, taking weeks or more.

during the incident and the capability of the interconnecting transmission pipes and supporting areas.

In order to assess this situation, a range of information would be required to establish what support can be provided. The ability of one jurisdiction or network to support another jurisdiction or network is very dependent on the following series of data, which is highly dynamic. This would include

- Historical information to establish forecasts
- Current supply / demand information
- Pipeline capacity information, and
- Load quantities available for curtailment

Effective analysis of a national supply / demand position and the capability of one network or jurisdiction to support another will be dependent on the development and ongoing management of a robust information management system.

Depending on the cause of the incident and time of the incident, the maximum available support from one network to another may be limited by the capability of the interconnection points, and may not involve curtailment on the supporting network. This highlights the importance of modelling the supply / demand.

7.6 Gas Fired Generation

There is a growing reliance on gas fired power generation in each state for supply. Subject to NEM interconnect levels and generation capabilities, gas fired generation may be shifted between states. The capability of these generators to switch to a secondary fuel is also crucial in this analysis.

Gas fired generation therefore needs to be addressed as a key element in any gas industry supply / demand analysis and take into account the electricity supply / demand requirements and interconnect transfer capabilities within the NEM.

8. Communications Protocol

The options paper discusses the use of existing communications frameworks. While there exist communications processes within jurisdictions to handle an emergency, there is no agreed framework to share or manage information and decisions amongst a multi-jurisdictional group. These protocols need to be developed, tested and maintained.

VENCorp believes that by using a process similar to the NEM process, the gas emergency protocol can leverage off the existing communications protocols in place within each jurisdiction. It would then be a simple matter to add the additional layer to link the jurisdictions.

9. Responsibility for Process Development

The requirements to develop the necessary protocols and processes can be undertaken by a variety of parties, although a group from within the industry should be able to develop more complete and effective processes based on their industry knowledge and experience.

The oversight and policy for the development of these processes should come from all the jurisdictions to ensure acceptance and ownership at all levels.

10. Costs and Benefits

Option 1, the lead agency, is likely to be a high overall cost option due to the need to establish duplicated processes, infrastructure and services within each jurisdiction.

Option 2, permanent committee, is likely to be a lower cost than option 1, as the committee would have the responsibility for the development of systems and processes, with the costs then being shared by all jurisdictions in an agreed manner.

Option 3, the central agency, may be the highest cost option if an agency was created solely to manage national gas emergencies.

However, if this function was embedded in an existing agency or department, the costs to establish information systems, communications protocols etc may be no higher than those of the standing committee, which would require these same tasks to be undertaken in any case. In the same way as option 2, these costs would then be shared amongst all jurisdictions.

11. Key Risks.

VENCorp believes that there are many risks associated with managing a national gas emergency, which are described as the issues previously discussed. In assessing the options for managing a national gas emergency, it is necessary to consider the effectiveness of the resulting outcome in terms of the mitigation or removal of these risks.

The Options Paper only considered some of these risks (see below) in its assessment:

Option	Risk
Option 1 (Lead Agency)	May be inadequately prepared. No effective emergency preparation. Information flows will be difficult to establish
Option 2 (Permanent Committee)	Committee structure may be too cumbersome. Emergency preparation may be inadequate
Option 3 (Central Agency)	Cost of service

In reviewing these risks VENCorp believes that the cost of service is a higher risk with option 1 due to the need to duplicate processes and services across jurisdictions. The provision of common services to the jurisdictions should see the lowest cost.

Under all options there is a risk of loss of skills over time. The risk associated with loss of skill is higher with options 1 and 2 than option 3, as these functions would be secondary to

jurisdictional work, and staff are likely to have no other training or experience in managing this type of emergency. Under option 3, the agency would be responsible for ensuring that skill levels are retained.

Further, there is a risk with selecting Option 2 (Committee) that it will not have the necessary skills and resources to establish and maintain the necessary infrastructure and processes for effective Emergency Management.

Review of Options

Option 1 - Lead Agency

The Lead Agency has a strategic role in managing the issues within a jurisdiction during an emergency. Like the NEM protocol, each jurisdiction would be responsible for managing the impact of an emergency in their jurisdiction. However, implementing this option for management of a national emergency would require duplication of activity amongst the jurisdictions, as well as an inconsistent approach to preparation and management of an emergency.

It is unlikely that proper emergency preparation can be achieved under this option. There is no function established to lead and coordinate this critical activity and no provision for effective sharing of planning information (static or dynamic). There may not be adequate skills and resources in all jurisdictions.

In some cases, two jurisdictions might be more or less equally impacted e.g. NSW and SA and (ACT) if Moomba supply fails. In these circumstances it is not clear which jurisdiction would be the lead agency.

Option 2 - Standing Committee

While providing the involvement of all jurisdictions, this option alone does not adequately provide the necessary mechanisms for the development of the protocol and the ongoing mechanics of preparing for an emergency. Emergency preparation can only be achieved under this option with the addition of planning support that could be included as an extension to a secretriat function.

Options 3 - Central Agency

This option provides the necessary mechanisms for the development of the protocol and systems for emergency preparation, information sharing and emergency management, but would not necessarily lead to the ownership or buy-in and support/cooperation from the jurisdictions. This option as a stand-alone function would be costly, would be difficult to properly and efficiently resource and may not be viable. To work, it would almost certainly need to be accommodated within and existing agency that already has the required skills and knowledge sets.

Recommendation

In assessing all the risks previously described (Section 11) associated with managing a national gas emergency, VENCorp is recommending a combination of all three options, which it believes will provide the most effective and efficient outcome for managing emergencies across multiple jurisdictions.

That is, each jurisdiction would be responsible for managing issues and actions within their jurisdiction, in the same way that the NEM protocol operates. This would include the establishment of a nominated officer to assist the process. Each jurisdiction would also provide Curtailment Tables based on common principles. Once the degree of gas supply support / sharing is established, the jurisdiction will manage its local supply-demand balance.

A standing committee, made up of jurisdictional representatives with possibly NEMMCo representation, would provide oversight of the development of the emergency protocol, would meet periodically to address policy and emergency planning activities. and would provide the necessary policy direction and agree strategies during an emergency.

This committee would be supported by a permanent secretariat, using the skills and resources of an existing agency or department. The skills and capabilities that would be needed to carry out the secretariat function would include:

- In-house resources and expertise in gas pipeline operation, analysis and planning;
- Experience in emergency preparedness and emergency management across a large number of stakeholders;
- Expertise and resources to prepare planning documents;
- Ability to consult with and consolidate industry reports and documentation;
- Appropriate governance structure to ensure independence.
- In-house resources and expertise to manage and maintain IT systems and databases to support this function;

The role of the secretariat would be extended to provide the necessary infrastructure and resources to develop the necessary processes to manage an emergency (including development and coordination of emergency exercises, establishment of planning information systems, etc) and would act as a central point of contact during an actual emergency.

This secretariat role would be responsible for managing and administering the mechanics of an emergency, which would include activities such as:

- Collection and assessment of planning information:
    - Static and dynamic data, such as supply, pipeline capacity, storage, demand, gas fired generation capacity, useable linepack etc.;
- Provision of information systems:
    - Databases and bulletin boards to support the transfer of planning information and model the national supply / demand balance;
- Pre-planning:

    - Development of emergency plans, communications protocols and processes, etc.;
- Coordinating national emergency exercises to test processes and protocols;
- Scenario planning:
    - Analysis of the most likely scenarios and actions required to manage these events e.g. loss of major supply source or loss of a major pipeline. Gas sharing and load curtailment strategies can be determined and agreed well beforehand.
- Maintaining emergency contact lists;
- Capability to operate outside normal business hours;
- Analysis of the national supply / demand situation during an emergency; and
- Coordinating communications during an event.

VENCorp believes that this amalgamation of options brings together the best features of these options for managing an emergency while at the same time minimizing the risks associated with these individual options.