Information paper

STATEMENT BY VICTORIAN ELECTRICITY DISTRIBUTION BUSINESSES ON THEIR PREPARATION FOR MEETING THE 2010-11 SUMMER PEAK DEMAND

17 December 2010

AUSTRALIAN ENERGY REGULATOR

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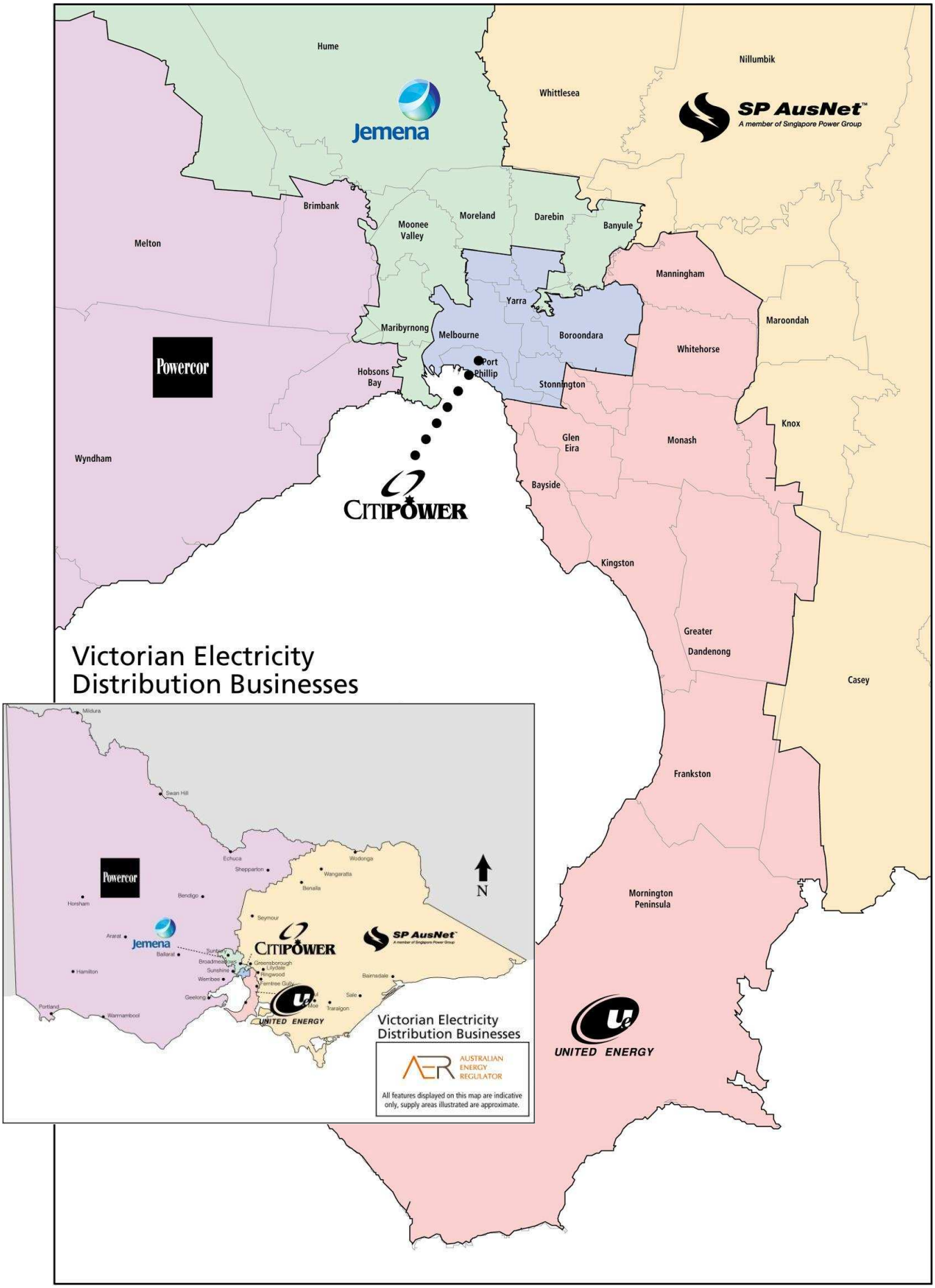
Supply Areas of Victorian Electricity Distribution Businesses



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1 Preface

This paper is intended to provide information to the public on how the Victorian electricity distributors are meeting their service and reliability requirements and obligations particularly in relation to their preparation for meeting the expected peak electricity demand for the 2010-10 summer.

There are five electricity distribution businesses in Victoria—CitiPower Pty, Jemena Electricity Networks[1], Powercor Australia Ltd, SP AusNet[2] and United Energy Distribution Pty Ltd. In this paper they are referred to as CitiPower, Jemena, Powercor, SP AusNet and United Energy.

As part of the transition to national regulation of electricity distribution and retailing, the Australian Energy Regulator (AER) is now responsible for exercising certain powers and functions previously undertaken by the Essential Services Commission of Victoria (ESCV) for the Victorian jurisdiction. The new responsibilities are conferred on the AER by the operation of the *National Electricity (Victoria) Act 2005* (NEVA) in accordance with the *Trade Practices Act 1974* and the *Australian Energy Market Agreement*.

The current Victorian distribution network revenue and service level targets were set by the ESCV for the current regulatory period (2006-10). The NEVA delegates power to the AER to administer the ESCV's *Electricity Distribution Price Review 2006-10 Final Decision* (EDPR) under the Victorian regulatory framework.

The AER has set the new revenue and service incentives for the 2011-15 regulatory control period under the *National Electricity Rules*. Information of the new distribution price determination is available from http://www.aer.gov.au/content/index.phtml/itemId/740791.

In addition to the administration of the EDPR, the NEVA confers economic regulatory functions, powers and duties on the AER regarding compliance monitoring and enforcement of the *Electricity Distribution Licence* conditions of the Victorian electricity distribution network service providers (DNSPs, or commonly referred to as electricity distributors). This includes the monitoring of the service performance levels provided by the distributors.

Public reporting of performance of these monopoly businesses is one of the key elements that underpin the economic regulatory framework. The AER decided to continue the existing performance reporting system of the ESCV, until the end of the current regulatory period in 2010. Public reporting after 2010 will be undertaken under the national regulatory framework.

As part of the current performance reporting framework, the AER has followed ESCV's practice to also seek information from the Victorian electricity distributors

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1 Prior to August 2008 Jemena was known as Alinta AE. It was known as AGL Electricity Ltd before 2006.

2 SP AusNet is the trading name of SPI Electricity Pty Ltd. It was previous known as TXU Networks.

regarding their preparation to meet the peak electricity demand during the 2010-11 summer period.

Specific performance reports of the distributors for the 2009 and earlier calendar years are available from http://www.aer.gov.au/content/index.phtml/itemId/732115.

2 Process of preparation of this paper

The following process was used to compile this information paper:

- The CEO of the AER wrote to the CEOs (or equivalent) of the electricity distribution businesses in October 2010 to seek their assurances that each business has taken steps to (1) minimise the occurrence of distribution network failures that are within its control; (2) respond quickly to restore supply and to communicate effectively with customers should wide-scale supply interruption events occur.

- In addition to the above assurances, each business provided the following information to the AER prior to end of November:

  - the nature of planned investment, maintenance and network management initiatives to ensure that each company's network has the capacity to meet the prospective peak demands during the coming summer, and the progress made to date in implementing these initiatives

  - the supply restoration, public communication and customer service strategies to deal with major supply interruption events, including lessons learnt from the late January 2009 heatwave and 7 February 2009 (Black Saturday) events.

- The AER prepared a draft paper in mid-November, which compiled and summarised the information provided by each of the distribution businesses on their preparation for the coming summer period.

- The AER publishes this paper after verification/correction for inadvertent errors of fact by the distributors.

3 Statements from electricity distributors

The distributors reported that they have reviewed and refined their practices following the late January 2009 extreme heat and 7 February 2009 Black Saturday events. In particular changes and initiatives have been made in the following areas to improve their ability to meet the peak demand in the 2010-11 summer period.

3.1 Lessons learnt from previous wide-scale events

All distributors together with the Department of Primary Industries (DPI), the Australian Energy Market Operator (AEMO) and Energy Safe Victoria (ESV) established a protocol for a single industry spokesperson arrangement in relation to major widespread outage events in Victoria. This is intended to ensure that single consistent messages will be provided to the public.

The distributors and ESV also developed a consistent set of safety and emergency preparation messages, which are being used to promote public awareness and preparation ahead of major events.

In recognition of customers generally not being aware of who are their respective distributors, Victorian distributors also produced and distributed to all Victorian media organisations a map and guide to network areas and the distributors' media contact points.

Other specific improvements by the distributors include:

- CitiPower and Powercor:
    - developed and implemented an enhanced customer outage information advice service on CitiPower's website—This service provides real-time information about current outages, together with available restoration estimates, fault location and cause. Information is accessible by map or by postcode.
    - developed operational procedures to respond to the recently updated Emergency Services Departmental Regional Boundaries
    - reviewed and refined escalation and operational procedures
    - further developed their Fire Mapping solutions to overlay CFA and DSE Fire Mapping onto their Geographic Information System database to assist in both managing their assets and managing field crews to respond to fire related events
    - further enhanced their Weather Zone Site to enable real-time tracking of lightning strikes to distinguish ground strikes from inter-cloud strikes to further refine the response to lightning storms
    - in the event that manual load shedding required at AEMO's direction due to insufficient generation, CitiPower and Powercor have previously demonstrated their capability to quickly respond to ensure the integrity of the network for the wider benefit of customers. Their feeder load-shedding priority has been

reviewed and takes into account the impact of load-shedding on essential services, high rise buildings and major traffic routes.

- Jemena and United Energy:
  - refinement of contingency plans to address continuous and extreme heat events
  - refinement of roles and responsibilities for wide-scale and wide spread outage response management
  - reviewed the guideline that governs the management of load on distribution substations
  - improvement to repair work order process
  - improvement to rostering schedule
  - adjusted the holding level of spare equipment
  - improved internal communication on the quality and timeliness of outage information and greater use of SMS system to communicate with field crews
  - improved external communications by introducing:
    - online outage notifications to customers via the website
    - enabling SMS messaging to the Call Centre Service Standards
    - improvements of interactive voice response (IVR) messaging
    - single industry media spokesperson.

- **United Energy** also advised that although it was not directly affected by the impact of Black Saturday on 7 February 2009, it has learnt from the experiences of other distribution network businesses. These learnings have been used to further refine and improve its outage response.

- Initiatives undertaken by **SP AusNet** that would facilitate response to wide-scale events are discussed in other sections of this paper, in particular under section 3.5.4 (contingency plans) and 3.6.3 (public communication).

3.2 Improvements to outage reporting

Jemena and United Energy both advised the following initiatives:

- Access to outage information via internet—Jemena and United Energy both provide outage information on its website. After the January 2009 heat event, both distributors have updated the website outage information page for the public. They currently have a project team working to further improve the timeliness and quality of this system, with anticipated completion during the summer. A web format has been configured for mobile phones to enable the public with

appropriate handsets to download information from the website if they are in a location where the power supply is interrupted. The website provides information about the outage locations and planned restoration time. The aim is to provide communities with information to enable to make decisions to fit their own individual situation and family environment.

- access to outage information via SMS service:
  - To assist customers seeking information about major electricity outages, both distributors have introduced a 24/7 automated SMS response service for customers in their distribution areas. They also expect that SMS communication will alleviate the demands made on the emergency faults lines in the call centre thus reducing the wait time to talk to an operator on the existing Faults and Emergencies phone lines, especially in times of extreme weather events.
  - Customers can SMS the postcode of their supply address to an SMS mobile telephone number and will receive an automated response giving them the same IVR information (confirmation of locality of outage and expected duration, if known) that they would receive if they had called the Faults and Emergencies number.
  - If there are no major outages recorded for the postcode, the automated response will advise the customer to call the applicable Faults and Emergencies number to talk to a consultant and register their outage.
  - Post the January 2009 heat wave events, further improvements were made to the call centre performance. Improvements have been made to both distributors' IVR messaging systems to enable it provide more localised and specific outage messages. Jemena and United Energy currently have capacity to load an unlimited number of specific messages consecutively and offer customers the option of providing their postcode whilst in the IVR to reduce the number of messages they hear, or alternatively using an SMS service to receive a response with outage information for their postcode. A number of key upfront messages have also been pre-recorded to cover potential scenarios such as fire, storm and load shedding.

CitiPower, Powercor and SP AusNet advised that they have improved their call centre resources as described in the following section.

3.3 Improvements to call centre resources

Distributors have implemented a number of improvement measures.

CitiPower and Powercor advised that:

- Arrangements have been made to increase the resources available to take calls from field crews via a 1300 call queuing system and update the OMS (Outage Management System) system during major outages by temporarily diverting staff from their normal duties. A pool of personnel based at Market Street is trained to receive calls and update the OMS system.

- They share two contact centres, located in Bendigo and Melbourne. These contact centres operate as a virtual contact centre meaning calls be taken at either site regardless of where the call originates from. In particular:
    - The contact centre utilises IVR technology and widespread messaging, which enables the centre to provide automated outage information to in excess of 15,000 calls per hour.
    - IVR and web based outage messaging is automated from the Outage Management System, which provides timely and accurate information to callers.
    - When changes are made within the OMS, for example, updated restoration times or causes, these changes are automatically sent to the IVR and the outage web page.
    - IVR technology can now provide callers with information about the property they are inquiring about. This is done by matching the customer's telephone number (landline and mobile) that is stored in its customer information system with information in its outage management. This change enables callers from the same postcode area to be played different messages based on their individual outage status.
    - If a caller elects to speak with an operator, the customer's information, including name, address, national metering identifier (NMI), etc, will be presented to the customer service advisor in the form of a "screen pop" when the call is answered.
    - Customers who may be calling from a number that is not registered in its customer information system will be prompted to enter the postcode for the area they are inquiring about. The IVR technology will then play them an outage message relating to the town or suburb postcode they have entered.
    - "Widespread messages" can also be played to customers, whereby the caller can listen to information relating to the current event as soon as they have entered the call centre system. This occurs in addition to property and postcode specific information in the IVR, and any messages played whilst queuing to speak to an operator.
    - The contact centre has employed additional part time resources in preparation for the summer season and maintains paid availability rosters to ensure staff are available at short notice.
    - The contact centre conducts additional faults refresher training in the lead up to the summer for all customer service advisors.
    - The contact centre has an additional 20 staff from its Market Street office to support the business by taking calls during a major event. These people have been provided with training for the 2010-11 summer, and are given refresher training on a quarterly basis.

- The contact centre has the ability to deploy additional ad hoc messaging to callers queued in the telephone system that enables more specific information to be played in addition to the pre-recorded messages that are available in the IVR.

Jemena and United Energy both advised that their call centre services are provided by a common outsourced service providers, which provides the service on a shared basis to both distributors. In 2008, this service provider introduced a number of improvements on behalf of Jemena following the 2006 Call Centre Review that was conducted by the Essential Services Commission. In addition, post the 2 April 2008 storm event, the service provider has also:

- introduced monthly training sessions for 25 non-fault call staff and a number of management personnel in faults call procedures to ensure that their skill sets remain current—The monthly training includes two hours of learning faults call basics and taking fault calls under supervision. Currently, there are an additional 35 staff trained in handling fault calls, above normal staffing

- increased the number of staff with remote agent capability and rostered them to regularly work a shift from home to ensure that they are ready and able to login if needed in an emergency—Currently, the service provider has 12 staff with Remote Fault Agent capacity from home

- pre-recorded additional upfront IVR messages in readiness for situations such as storm or load shedding incidents

- adjusted staff rostering over the Christmas and New Year period to provide better coverage based on recent history

- permanently configured a total of 50 call centre seats to facilitate rapid deployment of additional staff—Previously telephony and computer configuration changes had to be made on an ad hoc basis to convert additional seats to Faults work when an wide-scale event occurred.

SP AusNet advised that:

- Its telephone system at the new Bundoora facility has been established with full fault phone response capability. Similar fault response systems exist in dedicated fault response rooms at two other locations, which were upgraded in 2009. These initiatives have provided significant improvement in fault call flow-over capability to SP AusNet offices, and facilitating the participation of a Severe Weather Action Team (SWAT) volunteers.

- The IVR system has also been enhanced. Together, these measures have further improved SP AusNet's call answering capability.

3.4 Supply restoration

The Victorian *Electricity Distribution Codes* requires distributors to use best endeavours to develop, test or simulate and implement contingency plans to deal with events that have a low probability of occurring, but are realistic and would have a

substantial impact on customers. These plans include an industry established mutual aid plan that enables assistance to be quickly provided should large-scale supply interruptions occur.

Distributors advised that they have implemented the following initiatives.

3.4.1 CitiPower and Powercor

CitiPower and Powercor advised that they have undertaken the following initiatives to ensure effective response to major events:

- combined the CitiPower and Powercor Escalation Event Management processes allowing greater flexibility in the allocation of resources
- implemented a single CitiPower and Powercor Dispatch Roster to further enable flexible support during Escalation Events
- reviewed resource contingency plans for the summer period to ensure adequate field and technical resources are available in particular for key periods such as Christmas, New Year and heatwave periods
- reviewed stocks of critical materials and contingency equipment to ensure that localised network events can be promptly remedied
- increased the number of staff available from other parts of the business to assist in support roles during emergencies and conducted training to ensure that they have the appropriate level of knowledge and skills
- introduced some additional availability roles to provide extra support for control room staff to effectively manage the information flow within their Outage Management System during a significant outage event
- conducted training exercises in network contingency management with key control room and operational staff—These included:
    - refresher training programs to ensure operational staff and volunteer support teams are fully trained in emergency response procedures
    - participation in operation “Tormenta” to test communication processes between AEMO and the Electricity Industry related to a major event
    - a pre-summer preparedness review briefing for all key senior management in preparation for the 2010-11 Summer
    - refresher training for their Emergency Services Liaison Officers which also covered a session on the recently updated Emergency Services Departmental Regional Boundaries.

3.4.2 Jemena and United Energy

Jemena and United Energy both advised that:

- They have developed comprehensive contingency plans for the 2010-11 summer period to assist in the restoration of supply following network emergencies. The plans are similar to the contingency plans adopted in previous years, which it has found to be effective. However, since the heat event of the 2009 summer, checklists used in developing the plan have been refined to account for specific heat related events. In addition contingency plan briefings are now initiated earlier in advance of forecast heat events. In addition:

    - The plans are developed under three main categories—zone substation, sub-transmission line, and terminal stations.

    - Under system normal conditions and with all plant items in service, the risk of loss of supply due to distribution network constraints on days of high demand during the 2010-11 summer period is insignificant. However, in emergency situations, following accidental loss of plant items, there is the risk of loss of supply at a number of points in its network.

- Regarding response to network fault repairs, Jemena and United Energy have made the following refinements:

    - Refinement of roles & responsibilities for outage response management—Both distributors have reviewed the key tasks and activities that are generated by an emergency outage from a heat event and have made refinements to the roles and responsibilities of the key staff involved in managing a response. Both distributors have documented the responsibilities of these roles, trained individuals to fill these roles and will hold refresher training prior to 20 December 2010.

    - Control centre resources during wide-scale emergency outage—Both distributors have reviewed their resource needs during wide-scale emergency outages and have plans to mobilise additional staff at short notice to handle incoming trouble orders to enable staff to better analyse incoming data and despatch restoration crews more efficiently. Additionally systems have been enhanced to manage the repair activities associated with extended heatwave and wind induced events. These systems provide increased decision making ensuring correct prioritisation of outages to meet community needs.

    - Revision of rostering schedule—Both distributors have instigated the early rostering of management staff for the summer period, to ensure that adequate coverage is available in the event of any emergency event. This includes the staggering of the start times of field resources to better align to the weather conditions and therefore the anticipated fault profile. They will also monitor the shift arrangements during the heat events to ensure that the health, safety and welfare of staff are actively managed. They found during the previous heat events that the “freshness” of staff was critical to tackling any protracted emergency event.

    - Revision of spare holding management—Both distributors have analysed the data on equipment failure from the previous summer and have revised the number and type of spares, particularly fuses and distribution transformers which are held in stock in anticipation of a heat event.

- Improvements in quality and timeliness of outage information—Both distributors have invested in system changes to improve the quality, timeliness and availability of outage information to enable them to make optimum supply restoration decisions and ensure the most up-to-date information is communicated to customers, retailers and the public. This information is critical for quick prioritisation and deployment of resources and will form the basis of outage information Jemena provides to customers, either through the web, IVR, SMS or by the call centre staff.

- Extended the use of SMS system—Both distributors have extended the use of SMS systems to enable better management of work crews and ensure management is informed of significant events. The SMS systems have been extended to include the establishment of resource availability and the issuing of alerts, notifications and escalation triggers.

3.4.3 SP AusNet

SP AusNet's actions relating to improvements to restoring supply outages are covered under its contingency plans in the following section.

3.5 Contingency plans

Distributors advised that they have undertaken the following improvements.

3.5.1 CitiPower

CitiPower advised that it has undertaken the following:

- Detailed review of distribution system performance and demand forecasts—At the conclusion of each summer it conducts a demand forecasts, covering future summer periods. This review was completed in June 2010. The timing of this process allows sufficient scope for any urgent works to be completed prior to the forthcoming summer period, as well as refining the timing of longer term projects. The forecasts are used to plan augmentations of network capacity—including connection capacity to the transmission system—and implement projects that maintain network reliability and security.

- Pre-Summer Network Re-configuration—Prior to each summer, CitiPower carries out load transfers across the network to ensure that the resulting configuration of the network is optimal in terms of maintaining security and reliability of supply during peak demand periods. Plans for this year's pre-summer load transfer are being implemented.

- Automation—Three upgraded plant protection schemes are planned to be commissioned at Collingwood (B), Deepdene (L) and Riversdale (RD) zone substations by the end of 2010 to provide increased security of supply.

- Contingency Planning—CitiPower maintains extensive distribution and connection asset contingency plans in the event of equipment failures at times of peak demand. These plans have been revised for the expected peak demands of summer 2010-11.

CitiPower also advised that it has been necessary to introduce a new contingency plan to deal with reduced capacity from West Melbourne Terminal Station. After the extreme ambient temperatures experienced in 2008-2009 summer, SPI PowerNet (the Victorian transmission service provider) has advised CitiPower of reduced transformer ratings at West Melbourne Terminal Station. This reduction in ratings means that CitiPower, in implementing their contingency plans, will be required to reconfigure its distribution network from system normal when hot weather is predicted, resulting in a reduced network reliability. This contingency plan will continue to remain in place until augmentation works at Brunswick Terminal Station are completed.

3.5.2 Jemena and United Energy

Both distributors advised that:

- They have developed [Jemena], or are finishing [United Energy], comprehensive contingency plans for the 2010-11 summer period to assist in the restoration of supply following network emergencies. The plans are similar to the contingency plans adopted in previous years which we have found to be effective. However, since the heat event of the 2009 summer, checklists used in developing the plan have been refined to account for specific heat related events. In addition contingency plan briefings are now initiated earlier in advance of forecast heat events.

- The plans are developed under three main categories:

  - zone substations

  - sub-transmission lines

  - terminal stations.

- Under system normal conditions and with all plant items in service, the risk of loss of supply due to distribution network constraints on days of high demand during the 2010-11 summer period is negligible. In emergency situations, following accidental loss of plant items, there is the risk of loss of supply at a number of points in our network. Such loads at risks have been identified in the Transmission Connections Planning Report and the Distribution System Planning Report, which will be published on the distributors' internet web sites. The joined distributor 2010 Transmission Connection Planning Report and the 2010 Distribution System Planning Reports of the two distributors will be completed before the end of December 2010.

- To effectively manage the loads at risk, a number of actions were identified and implemented prior to the summer season. They are:

  - The level and severity of the network risks were assessed and quantified.

  - Ratings of the highly loaded plant items were reviewed and where necessary short-term ratings (24-hour, 2-hour, and 10-minute) were assigned.

- Load transfer capability away from the critically loaded stations and lines were assessed and quantified.

- Detailed switching instructions to remove or alleviate the risk of loss of supply have been prepared and documented.

- In most contingency situations, it is possible to effect inter-station load transfers within two hours by switching operations in the field without interruption to customer supply. However, a number of stations will be exposed to the risk of exceeding their short-term ratings following accidental loss of a transformer on days of high summer load, with some customers probably experiencing short interruption of supply while loads are transferred away from the stations.

3.5.3 Powercor

Powercor advised that:

- At the conclusion of each summer it conducts a detailed review of distribution system performance and demand forecasts. Powercor's current demand forecasts, covering future summer periods, were completed in June 2010. The timing of this process allows sufficient scope for any urgent works to be completed prior to the forthcoming summer period, as well as refining the timing of longer term projects. The forecasts are used to plan augmentations of network capacity (including connection capacity to the transmission system) and implement projects that maintain network reliability and security.

- It has developed and revised specific summer system contingency plans for:

  - distribution network areas subject to high summer demand

  - connection assets in conjunction with the SP AusNet Transmission Operations Centre, and Jemena and United Energy.

3.5.4 SP AusNet

SP AusNet advised that its operational processes and systems are established and updated for summer loading conditions under system normal conditions and for altered network configurations resulting from contingency events. The status of key network operations readiness activities are:

- pre-emptive summer feeder reconfigurations and contingency plans, to be completed by mid-December 2010

- ensuring information systems updated / operating correctly for summer, for example. plant ratings and data, SCADA point operation, feeder load shedding data and prioritisation categories, configuration abnormals, on target for completion by summer

- network serviceability checks, including stocks of spares (e.g. fuses), capacitor bank and cooling system serviceability, plans for emergency use of mobile generators, on target for completion by summer

- review of emergency management processes, on target for completion by summer

- refresher training for controllers and dispatchers, focussing on summer network conditions / potential conditions, completed

- control centre staff participated in a variety of external development initiatives, including an SES emergency management course and industry emergency management exercises

- renewed focus on customer emergency response system—training and refresher courses have been carried out for SP AusNet volunteers who participate in the storm response initiative (Severe Weather Action Team (or SWAT) participants), with improved phone and computer systems access provided for increased level of participation

- accessing and utilising meteorological and emergency services data, and briefings/discussions with emergency services agencies—This is an on-going activity. There are also well developed access arrangements and relationships.

3.6 Public communication

The public communication strategies of the five distributors have been progressively improved through experience learnt over the previous wide-scale incidents such as the 2 April 2008 storm, January 2009 heatwave and the 7 February 2009 Black Saturday events. The following sections provide an overview of the current communication protocol of the distributors.

3.6.1 Single industry spokesperson

The five distributors in conjunction with the Australian Energy Market Operator (AEMO) have established a protocol for a single industry spokesperson in relation to major widespread outage events in Victoria. This is intended to ensure that single consistent messages will be provided to the public.

3.6.2 Customers with special needs during prolonged outage events

All distributors are now required by the *Electricity Distribution Code* to inform the Victorian Department of Human Services (DHS) during widespread supply events where customers are off supply for more than 24 hours. The information includes:

- a list of all residential customers, including those flagged as on life-support and sensitive load, that have been off supply for more than 24 hours

- any relevant information brought to the attention of the distributors in relation to the customers.

This information would help DHS to make decision on whether individual door knocking would be necessary and to identify those people who may need specific help during prolonged wide-scale emergencies. In turn DHS will keep the distributors updated with the:

- outcomes of their door knock attendance activity (if performed)

- critical issues that are identified, such as customer injury, life support needs and customer not registered as requiring special needs

- any other information on specific customer situation.

According to the distributors, DHS is trialling a notification protocol with a view to having it adopted as the standard industry notification protocol by the Victorian Electricity Emergency Committee (VEEC).

3.6.3 Distributor specific arrangements

CitiPower and Powercor advised that:

- Their corporate affairs and network control personnel participated in crisis simulation exercises run by AEMO, which have reviewed and extended industry-wide protocols including both communication and operational response to significant supply

- Their public communication strategy includes:

    - a 24 hour a day, 7 day a week media hotline service to manage all media communications (Hotline number is (03) 9683 4342)

    - in the event of a serious disruption, the media service will proactively provide information to affected communities through the local media—initially with radio for real time advice, then TV and the local press as appropriate

    - in accordance with their obligations under the Victorian Distribution Code, it will have written to their network customers by the end of 2010 outlining CitiPower's role in the maintenance and restoration of supply, and providing web and telephone contact details. CitiPower is also providing fridge magnets with this correspondence, advising customers to listen to local radio during emergencies. These fridge magnets also include space for the customer to record their NMI to assist in customer identification

    - formal arrangements and procedures are in place with ABC Radio and the ACE Radio Network [Powercor only] for provision of emergency information as required during the upcoming summer. These arrangements include the ability to break into normal programming in the event of major emergencies

    - development of consistent messages to be used across the industry in public communications

    - a communications strategy, including extensive contingent resourcing and role definitions, has been prepared for the event of a major emergency over the summer period, to ensure that at least two media spokes persons are available at all times, along with support staff.

Powercor also advised that it is again running an extensive bushfire mitigation communication campaign this spring and summer, publicising the risk of bushfires, the responsibilities of the public and the need for public preparation, and providing advice about of Powercor's obligations and bushfire prevention activities.

Jemena advised that:

- Based on the experience gained from the wide-scale supply interruptions of the 2 April 2008 storm and the heat wave of January 2009, it has implemented changes such that customers can now access outage information via:
    - 24/7 Faults and Emergency phone lines
    - SMS communication
    - Jemena website
    - retailers and other industry stakeholders
    - media coverage.
- Its external communication plan has been augmented to include key personnel from the back office and call centre. The plan clearly indentifies key roles, accountabilities and specific scripts for various stakeholder bodies. Over the coming months, Jemena will interact with retailers, AEMO and other relevant bodies over the coming month by providing information sessions on Jemena's communication strategy and ensuring they are able to assist with the information flow to customers during emergency events.
- It introduced a customer awareness of distributor program—Jemena is taking a number of initiatives to inform its customers on being prepared and what they can do should there be a power failure. The program includes:
    - Notify each of its customers annually in writing about its role in relation to maintenance of supply, emergencies and restoration after interruptions and the distributor's contact details and website address.
    - Follow up with the retail businesses that Jemena's name is printed next to the faults and emergencies number on the customers' retail bill.
    - Placing community announcement in newspapers. Last year, Jemena placed a community announcement in the Age about the things customers can do to prepare in the event of power failure and how they can access outage information other than via the traditional method of calling the faults and emergencies number. Jemena intends to do the same for the coming summer period.
    - Conducting annual Life Support Reconciliations' with the retailers and then providing in writing to those customers a brochure on what Jemena's role is and what to do during power interruptions.

SP AusNet advised that it has established methodologies to provide information to the public in the event of significant incidents, including:

- Customer information is provided through the 24 hour Fault Call Centre—Information is also available through network status information posted on SP AusNet's website, with a dedicated page listing all outages, causes, areas affected

and estimated restorations times. A postcode search is available for customers to identify areas where supply is affected, the cause and when restoration is expected. This postcode search is also accessible for customers viewing SP AusNet's website from a handheld device, such as an internet phone or BlackBerry®.

- The Corporate Communications Department manages all media inquiries through a 24-hour, 7 days a week media pager service. During an incident management process, radio (and if appropriate, TV) and electronic media are regularly updated to ensure new material is provided for news bulletins and to reinforce the message that SP AusNet is working to restoring supply as soon as possible.

United Energy advised that:

- It has a well established external communication plan in the event of a wide-scale supply interruption. It includes communication with customers, electricity retailers, SPI PowerNet, AEMO, the media and industry regulators. This plan was augmented following the experiences gained from the wide-scale supply interruptions of the 2 April 2008 storm and the heat wave of January 2009.

- Customers can now access this information via:

  - 24/7 Faults and Emergency phone lines

  - SMS communication

  - United Energy's website

  - retailers and other industry stakeholders

  - media coverage.

- The external communication plan has been augmented to include key personnel from the back office and call centre. It has clear identification of key roles, accountabilities and specific scripts for various stakeholder bodies. United Energy will interact with retailers, AEMO and other relevant bodies over the coming month by providing information sessions on its communication strategy and ensure they are able to assist with the information flow to customers during emergency events.

- Similar to Jemena, United Energy has also implemented a number of initiatives to inform its customers regarding being prepared for, and what to do in the event of an electricity supply interruption. These include:

  - notifying each customer in writing regarding their role in relation to maintenance of supply, emergencies and restoration after interruptions and the distributor's contact details and website address

  - arrange with the retail businesses for United Energy's name to be printed next to the faults and emergencies number on the customers' retail bill

- making community announcements in newspapers—In 2009, United Energy placed a community announcement in the newspaper advising customers of how to prepare for electricity supply interruptions and how to access outage information. United Energy intends to provide this service in 2010

- conducting annual Life Support Reconciliations' with the retailers and then providing in writing to those customers a brochure on what United Energy's role is and what to do during electricity supply interruptions.

3.7 Capital works

Information on each distributor's capital works are summarised below.

3.7.1 CitiPower

CitiPower advised that it will complete the following investments to ensure the network has adequate capacity to meet the peak summer demand:

- a new zone substation at South bank (SB) with an installed capacity of 110 MVA to meet customer demand

- one new high voltage feeder and 76 new distribution substations

- augmentation of four existing high voltage feeders and 44 existing high voltage distribution substations

- replacement of an existing aged transformer at Brunswick (BK) Zone Substation, scheduled for commissioning in December 2010.

3.7.2 Jemena

Jemena reported that the following construction works are either completed or are well underway to maintain supply reliability to customers for this coming summer:

- construction by SPI PowerNet—the transmission service provider (TNSP)—of a new 220/66kV transformer at Keilor Terminal Station (KTS)

- installation of a new 66/22kV transformer at Sydenham Zone Substation (SHM) is under way to be commissioned in December 2010

- installation of two new high voltage feeders and the upgrade of four high voltage feeders to reinforce the distribution network supplying the Newport, Essendon, Pascoe Vale, Craigieburn, Heidelberg areas—The majority of these upgrades and network reconfigurations are completed, with the remainder planned for completion by 31 December 2010.

- augmentation of a number of heavily loaded distribution substations—The majority of these augmentation projects are completed, with the remainder planned for completion by 31 December 2010. However, the distribution substation augmentation program will continue until 2015.

- asset replacement programs—These programs are driven by the condition of the asset rather than solely by the age of the asset. Inspection and maintenance programs are used to determine the condition of the assets. Its asset replacement program includes poles, pole tops, overhead line, distribution transformers, and high voltage switchgear and zone substation equipment.

  In response to pole top fires, verification of previous studies into the critical factors affecting pole fire ignition has been performed. Analytical studies are continuing to identify high-risk assets and geographical locations, and these have been ranked on the basis of the likelihood of pole top fires. A program has been implemented to inspect, tighten and replace hardware in these areas over a number of years. In 2010, Jemena has completed the following major projects:

  - replacement of transformer and feeder circuit breakers bushings that had reached the end of service life
  - replacement of high voltage (HV) cross-arms and insulators on parts of Broadmeadows (BD), Coburg North (CN), Footscray East (FE) and Footscray West (FW) high voltage feeders to reduce the incidence of pole top fires
  - replacement of steel conductor, ties and pole top structures in the high bushfire risk area that had reached the end of their service life
  - continuation of the zone substation fence and gate upgrade program to improve physical security of electricity distribution assets
  - replacement of obsolete and aged surge diverters on various high voltage feeders
  - replacement of non-tension connectors on various high voltage feeders.

3.7.3 Powercor

Powercor advised that it will have completed the following investments to ensure the network has adequate capacity to meet the peak summer demand:

- installation of a second 66/22kV transformer at both Cobden (COB) and Wemen (WMN) zone substations
- installation of a fourth 66/22kV transformer at Castlemaine (CMN) zone substation
- installation of additional transformer cooling at Horsham zone substation to increase capacity
- distribution feeder augmentation in the Geelong, west of Melbourne, Charlton, Ballarat and Bendigo areas to meet increasing summer demand
- augmentation of the Single Wire Earth Return (SWER) network to meet the increasing summer demand in the Ballarat, Kyabram, Winchelsea and Woodend areas

- augmentation of the low voltage (LV) network (170 projects) to ensure that adequate LV capacity is available to meet peak summer loads

- purchase of a zone substation transformer (to be deployed at Castlemaine Zone Substation in mid 2011)—such that it can be held as a system spare over the summer period.

3.7.4 SP AusNet

SP AusNet advised that its 2010 works program will result in new asset availability for summer in priority locations across the network, which will serve to minimise the likelihood of supply interruptions. The new network assets and their respective target service dates are:

- establishment of a third transformer at Cranbourne Terminal Station (CBTS), Completed in 2009

- a new Lysterfield Zone Substation (LYD) and associated feeder reconfiguration to address the load/energy at risk at Narre Warren (NRN) Zone Substations, to be completed before mid-December 2010

- a new 20/33 MVA transformer at Warragul Zone Substation (WGL), scheduled for commissioning late February 2011—the new transformer will be used as a standby unit should the other transformer fails during the summer period

- a second 66 kV line from Cranbourne Terminal Station to Clyde North Zone Substation to provide additional capacity in this rapidly developing area and prevent overload of the 66 kV loop, completed

- installation of five new 22 kV lines, four completed, capacity augmentation for the remaining feeder to meet summer requirements scheduled for completion in December 2010 and project completion early in the new year

- augmentation of six 22 kV lines, five completed and one to be completed in December 2010

- continuation of its distribution transformer upgrade program—172 transformer replacement to March 2010, another 239 transformer upgrade before the 2010-11 summer and another 45 units by the end of March 2011.

3.7.5 United Energy

United Energy advised that the following significant investments are either completed or underway to maintain supply reliability to customers for this coming summer:

- redevelopment of Rosebud Zone Substation, including the replacement of 66/22kV transformers and installation of indoor distribution switchgear

- upgrading sub-transmission lines between East Rowville Terminal Station, and Dandenong South and Dandenong Valley Zone Substations

- installation of four new high voltage distribution feeders and the upgrade of four feeders to support the projected growth in customer demand

- augmentation of a number of heavily loaded distribution substations—The highest priority augmentation projects will be completed by 31 December 2010. The distribution substation augmentation program will continue until 2015. Completed items associated with this $25M program are:

    - an analysis of the performance of distribution substations during January 2009

    - load measurements on targeted distribution substations

    - redesign and augmentation of a significantly increased number of distribution substation and associated circuits compared with previous years

    - review of fusing policy

    - review of failed distribution transformer replacement policy

    - review and subsequent increase of investment levels in distribution substation augmentation.

United Energy also advised that it asset replacement programs are driven by the condition of the asset rather than solely on the age of the asset. Inspection and maintenance programs are used to determine the condition of the assets. Its asset replacement program includes poles, pole tops, overhead line, distribution transformers and high voltage switchgear and zone substation equipment.

In response to pole top fires, verification of previous studies into the critical factors affecting pole fire ignition has been performed. Analytical studies are continuing to identify high-risk assets and geographical locations, and these have been ranked on the likelihood of pole top fires. A program has been implemented to inspect, tighten and replace hardware in these areas over a number of years. United Energy will complete the further replacements of 66kV sub-transmission line assets located on and around the Arthurs Seat area to further secure supply to the Mornington Peninsula by mid December 2010.

The condition assessment of the steel conductors that are in service on United Energy's network was completed in 2010. The program has involved the examination and assessment of the condition of the conductors, ties, connectors and associated hardware using a pole mounted high resolution camera to determine the extent of any corrosion or physical damage. Where replacement is required, the asset has been prioritised for action. The highest priority replacements will be completed by mid December 2010.

3.8 Maintenance works

Distributors advised that their maintenance strategies include cyclic asset overhaul, condition monitoring—such as visual inspection and thermographic (infrared) or radio-frequency surveys—and vegetation management. The following are some of the key maintenance activities undertaken by the distributors in preparation for the 2010-11 summer.

CitiPower, Jemena, SP AusNet and United Energy advised that all bushfire mitigation preparation activities will be complete and the Bushfire Mitigation Index (BFMI) will be kept at “zero” by the date of declaration. The index will be maintained at zero throughout the declared fire danger period in accordance with its bushfire mitigation strategy.

Powercor advised that its objective is always to have, and maintain, a BFMI of zero at the time of declaration and throughout the fire season. However, wet weather access issues are currently delaying Powercor's bushfire mitigation activities for the 2010-11 fire season, particularly in Southern Victoria. Powercor is continuing to strive to reduce the BFMI index to the greatest extent possible over the coming weeks.

3.8.1 CitiPower

CitiPower advised that:

- Whenever possible, scheduling for maintenance at times that avoid peak demands in order to provide maximum network security and flexibility. On days of extreme heat, planned outages of sub-transmission, high voltage (HV) and low voltage (LV) network elements will be cancelled to ensure minimum risk to network security.

- It has also undertaken the following maintenance works:

  - on-line oil dehydration on a total of five transformers at two zone substations

  - oil regeneration on two power transformers at one zone substation

  - testing and routine maintenance of 66 kV oil filled cable forming part of the 66 kV sub-transmission network of the CBD

  - a thermo-vision audit of equipment within CitiPower indoor distribution substations in the CBD area

  - washing sub-transmission and selected HV line insulators—This work is scheduled for summer each year on a priority basis determined by the strategic importance of the line, types of insulators and prevailing weather conditions. Line conditions and environmental factors are reviewed in November and January each year to determine the optimum time to commence washing

  - replacing eight temperature indicators on four zone substation power transformers to ensure correct operation of cooling fans—This work is programmed for completion by the end of December 2010

  - upgrading protection relays at South Melbourne (SO) and Dock Area (DA) zone substations

  - installation of surge diverters on feeders at Fairfield (FF) and Camberwell (CL) zone substations to better protect plant from over voltages.

3.8.2 Jemena

Jemena advised that:

- It uses the Reliability Centred Maintenance (RCM) methodology to determine the optimum asset maintenance policies. A range of asset parameters are used including asset type, criticality, failure modes, location and environment, asset age, number of operations performed and general condition. The use of RCM on a recurring basis ensures the effectiveness of the network maintenance strategy.

- Jemena's Asset Inspection and Maintenance Programs, including pole and line inspection, thermo graphic surveys and vegetation management program are on schedule in accordance with annual plans.

- All lines, including steel conductors, that have been identified as likely to be operating at or near their ratings under peak load conditions are being subjected to additional visual and thermo-graphic surveys. Weaknesses and defects detected during these surveys will be rectified to ensure maximum availability during the summer period. All works are planned for completion by mid December 2010.

- Planned maintenance works on all major items of zone substation plant are scheduled for completion in December 2010 to ensure their availability for service during the summer period.

- Studies are continually undertaken to investigate the performance of different aspects of the network and make recommendations for improvement. This involves investigations into individual feeder faults and performance monitoring to identify and improve poorly performing feeders.

3.8.3 Powercor

Powercor advised that it has expanded its fault reduction strategies by:

- whenever possible, scheduling maintenance at times that avoid peak demands in order to provide maximum network security and flexibility—On days of extreme heat, planned outages of sub-transmission, HV and LV network elements will be cancelled to ensure minimum risk to network security.

- upgrading regulators [voltage regulating devices] in the Tarnagulla/Maryborough and Rupanyup/Stawell areas to ensure continued reliability—Works in the Tarnagulla/Maryborough have been completed. All other works are scheduled for completion by the end of 2010.

- accelerating its transformer bushing testing program

- implementing a program for the replacement of analogue winding temperature indicators (WTIs) with digital relay types interfaced to the SCADA system to enable network controllers to monitor transformer temperatures—WTls on five transformers at two zone substations (Geelong East and Bacchus Marsh) are scheduled for replacement by year end.

- upgrading protection relays at Werribee (WBE), Eaglehawk (EHK), Merbein (MBN) and Woodend (WND) zone substations

- upgrading automatic circuit re-closers in the Serviceton North, Wycheproof, Leitchville, Waaia, Litchfield, Cohuna, Geelong and Hawken areas to maintain network reliability

- extending the application of thermo-vision techniques to the LV network—This technique identifies potential weak points on the system and allows rectification works to be undertaken prior to a system failure or fault occurring.

- on days of extreme heat and total fire ban, planned outages are risk assessed prior to commencing to ensure minimum risk to network security

- thermo-vision and corona camera audits of key lines and equipment are carried out to detect potential faults

- as part of the current cyclic asset inspection program Powercor uses the latest diagnostic techniques of elevated video streaming and photographic analysis of pole top assets to improve reliability.

3.8.4 SP AusNet

SP AusNet advised that, in addition to routine maintenance, a number of major network maintenance and replacement initiatives have been initiated to minimise the likelihood of supply interruptions during the 2010-11 summer. The initiatives and status are:

- cyclic preventative maintenance programs for the distribution network, on target for completion by summer

- priority corrective maintenance items in high bushfire risk areas, on target for completion by summer

- thermograph surveys of high load feeders and zone substations

- inspections of all identified high load zone substations and resulting corrective maintenance, on target for completion by summer

- enhanced aerial inspection program for poles, work programmed and prioritised for period October–January

- pre-summer preparedness inspection of sub-transmission and distribution feeders, on target for completion by summer

- response to Energy Safe Victoria's requests for disconnection of private overhead electrical lines (POEl), complete to date

- Bushfire recovery hazardous tree removal program—Stages 1 and 2 were completed in 2009 with 17,000 trees cut. A further 1,525 hazardous trees have been identified and cut during 2010.

3.8.5 United Energy

United Energy advised that:

- Its Asset Inspection and Maintenance Programs, including pole and line inspection, thermo-graphic surveys and vegetation management program are on schedule in accordance with annual plans. It has a well established system of inspection and maintenance programs that is effectively managed via the Works Management System contained within the SAP process management system.

- Monitoring of assets in the hazardous bushfire area will continue during the declared fire danger period.

- An inspection program targeting all steel conductors on the United Energy's network has been completed during 2010 involving close visual inspection using a pole mounted camera. All defective conductor and maintenance items have been prioritised for action prior to summer.

- All lines that have been identified as likely to be operating at or near their ratings under peak load conditions are being subjected to additional visual, vegetation clearance and thermo-graphic surveys. Weaknesses and defects detected during these surveys will be rectified to ensure maximum availability during the summer period. All works are planned for completion by mid December 2010.

- Planned maintenance works on all major items of zone substation plant are scheduled for completion in December 2010, to ensure their availability for service during the summer period.

- Equipment stock and spares, such as distribution transformers and circuit fuses, have been kept at appropriate levels to ensure prompt supply restoration to customers in the event of unexpected plant failures or supply loss due to extreme conditions.

- Studies are continually undertaken to investigate the performance of different aspects of the network and make recommendations for improvement. This involves investigations into individual feeder faults and performance monitoring to identify and improve poorly performing feeders.