ENERGEX Summer Preparedness Plan 2009/10

Final

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1. Executive Summary

In accordance with the requirements of the Queensland Electricity Industry Code, ENERGEX has completed detailed preparation and planning for its 2009/10 summer season responses in South East Queensland.

The Summer Preparedness Plan provides details of preparations that ENERGEX is carrying out for summer 2009/10 to provide 2.8 million South East Queenslanders with a reliable network so as to minimise interruptions during extreme weather conditions. ENERGEX plans to carry out network related capital and operating works totalling an estimated $474 million in the six months prior to the end of the calendar year.

ENERGEX's electricity network and operational procedures were brutally tested during the 2008/09 summer as South East Queensland experienced a period of intense storm activity. This commenced with a series of destructive thunderstorms on Sunday 16 November 2008 where wind gusts up to 176 km/h were recorded. The localised but significant destruction was compounded by further severe thunderstorms later in the week. Large hailstones, flooding, strong winds and multiple lightning strikes further damaged the network and exacerbated the working conditions for those striving to restore power. It was a testimony to the summer preparedness planning and the dedication and commitment of ENERGEX's staff that supply was restored by week's end to all customers where supply could be safely connected.

This Plan provides details of these capital and operating works as well as operational responses, system preparations and planned communication activities. It also implements recommendations made by the QCA in its review of the draft version of the SPP.

Preparations for summer 2009/10 have four major areas of focus:

- The capacity and security of the network will continue to be significantly increased to meet high summer energy and peak demand;
- ENERGEX will continue to improve the resilience of the network in times of severe weather;
- Further improvement will be made to ENERGEX's operational response to network emergencies; and
- ENERGEX will continue to provide timely and accurate communication with its customers and the media, in relation to network emergencies.

ENERGEX has developed this Plan as part of its long-term continuous improvement approach and is on target to further improve the resilience of the network to severe weather events, enhance operational response to such events, and keep customers and the media better informed of progress in restoring supply for the 2009/10 summer.

Finally, but most importantly, ENERGEX is committed to providing all staff with a safe workplace and the knowledge and skills to work safely, particularly during emergency conditions. All staff work to a culture of "safety first".

Terry Effeney
Chief Executive Officer

Chris Arnold
General Manager Network Performance

2. Introduction

At the request of the Queensland Competition Authority (QCA), ENERGEX produces a Summer Preparedness Plan (SPP) by the end of August each year. In accordance with the Electricity Industry Code 4th Edition effective 4 August 2008, the SPP details how ENERGEX will:

- Prepare its supply network for the upcoming summer to minimise outages of customers' electricity supply;
- Manage and minimise the impact of extreme weather events on customers' electricity supply;
- Identify and respond to emergencies that have the potential to impact on customers' electricity supply; and
- Keep customers informed of electricity supply issues during summer.

The SPP addresses these issues in several ways. It describes specific activities, including capital expenditure programs and operational or maintenance expenditure programs that are to be undertaken before the start of summer. A broad timetable for the implementation of these activities is also presented. Furthermore, the SPP details ENERGEX's capacity to manage and respond to extreme weather events and emergencies through appropriate emergency response programs, customer information systems, public communications strategies and staffing and resourcing levels. Where specifically requested by the QCA, supplementary information may also be included.

The ENERGEX electricity network, which distributes electricity to 2.8 million South East Queenslanders, is impacted each summer by a range of variable weather conditions ranging from severe electrical and wind storms to periods of high temperature and humidity. In preparation for this, ENERGEX carries out an extensive pre-summer program to prepare its network to minimise outages of customers' electricity supply resulting from extreme weather conditions. Customer communications processes are also reviewed to improve trouble response times and keep customers informed when such extreme events occur.

As in previous years, ENERGEX will focus its efforts across the four key areas shown in Figure 1.

Figure 1 - ENERGEX's Key Focus Areas for Summer Preparedness 2009/10

The 2009/10 Summer Preparedness Plan sets out ENERGEX's preparations prior to summer 2009/10 in the areas of:

- Network capacity and security through capital investment and demand management programs and initiatives, valued at approximately $474 million by end of December 2009;
- Network resilience through maintenance and operational programs and initiatives, valued at approximately $139 million by end of December 2009;
- Emergency response through resource planning and operational improvements including field force automation;
- Safety initiatives for staff and the community; and
- Communication through Contact Centre capability and mass communication strategies.

Identified programs and strategies have been developed and will be implemented to provide necessary operational changes before the 2009/10 summer storm season.

This is the fifth such Plan and is provided in accordance with the requirements of the Queensland Electricity Industry Code, as requested by the QCA.

3. Pre-Summer Network Preparations

During the first part of 2009, network performance has been evaluated and planning undertaken to identify parts of the network that warrant augmentation to keep pace with growing demand or improve system reliability and security. The separately published Network Management Plan (NMP) provides a five year view of network management strategies. This analysis has resulted in operating and capital programs being established to minimise the impact of summer weather conditions on customers' electricity supply.

3.1 Network Capacity and Security

To prepare for continued high demand forecasts during summer 2009/10, ENERGEX has initiated a capital investment program which forms part of the 2009/10 total system capital investment of $948 million. Works identified for summer preparedness before the end of December 2009 amount to approximately $474 million of capital investment. The specific major projects listed in Table 4 in Appendix 1 which are planned to be completed by the end of December 2009, will increase the bulk supply capacity by 160 MV.A and the zone substation capacity by 243 MV.A (403 MV.A total). Other 11 kV works to improve reliability include those shown in Table 1.

CAPEX	Jul-Dec 06 actuals	Jul-Dec 07 actuals	Jul-Dec 08 target	Jul-Dec 09 target
11 kV distribution feeders to be upgraded[1]	116	109	50	82
Distribution transformers to be upgraded	195	229	220	173

Note 1: Feeder upgrades include new 11 kV feeders, tie feeders or reconductoring works designed to increase 11 kV system capacity.

Table 1 - Capital Expenditure Works to December 2009

3.2 Network Contingency Planning

3.2.1 Overview

ENERGEX reviews its contingency plans for managing network failures and events such as exceptional hot weather on an annual basis. Detailed plans were in place for summer 2008/09 and planning for summer 2009/10 has commenced. The contingency plans encompass a number of aspects:

- Network contingency and load transfer plans to cater for single contingencies (eg. loss of a single major item of plant);
- Strategies for spares and replacement of major plant such as power transformers;
- Emergency response procedures covering management of major network incidents, including escalation as documented in the Corporate Emergency Management Plan;
- Simulation exercises to test procedures under different scenarios;
- Deployment of mobile generators to provide an emergency supply in situations where it is possible;
- Deployment of two ENERGEX-owned 33/11 kV mobile substations where practicable; and
- Application of available demand management options.

3.2.2 Contingency Plans for Summer (System Normal Conditions)

Immediately after summer each year the whole network is reviewed to ensure that all substations and feeders can supply a 10 PoE load for the following summer under system normal conditions (ie. NCC ratings). Where it is identified that forecast loads exceed ratings for the following summer and

augmentation works may not be completed in time, short-term mitigation strategies are developed. These strategies include a range of options such as load transfers, small capital works projects (possibly temporary), or demand management options such as generation or customer load curtailment.

ENERGEX has also developed a process to monitor loads during the summer period so that as hot weather develops, emerging "hot spots" where demand growth may have exceeded the previous annual forecasts are identified. In these cases, corrective action to avoid an overload is taken well before a capacity constraint occurs.

3.2.3 Contingency Plans for Summer (N-1 Conditions)

Network contingency plans detail what load transfers and load management options are available to restore supply following a single contingency event affecting bulk supply substations, zone substations and HV feeder networks. Preparation of these plans for the next 12 months have commenced and any identified N-1 conditions will be provided as input into the network development planning process.

As part of the summer preparedness plans, ENERGEX develops plans for all bulk supply substations, zone substations and 132/110/33 kV feeder networks. In cases where load transfer capability is not sufficient to enable supply to be restored following a single contingency, more comprehensive plans may be developed depending on the tolerability of the risk level identified. These include strategies such as:

- The design and possible construction of small temporary capital works (eg. a few spans of overhead mains to allow for temporary rearrangement of the network after a contingency); or
- The positioning of spare power transformers at substations considered to be at high risk (high likelihood or significant consequence) of an extended outage due to a major transformer failure.

3.2.4 Power Transformer Contingency Plan

Spare power transformers are managed by a "Transformer Movements Committee", which meets on a quarterly basis, or more regularly if required. This committee consists of representatives from a number of divisions across ENERGEX including Network Performance, Energy Delivery and Network Programming and Procurement.

The committee's objective is to ensure optimal use of all available transformers, for both planned and emergency use, taking into account the relative network risks at each location. Issues addressed by the committee include:

- Ensuring there are sufficient numbers of spare transformers (of appropriate sizes) for emergency use in the event of a transformer failure at any ENERGEX substation; and
- Determining whether transformers being replaced as part of planned capital projects should be overhauled and reassigned to another substation, kept as system spares or if uneconomical to refurbish, scrapped.

The availability of major plant items other than power transformers for emergency use, is managed through a "Strategic Spares" stock holding arrangement within the stores system. These spares include equipment such as switchgear, cables and fuses. The stock included in this system is held in a secure store that is separated from regularly used stock.

3.2.5 Mobile Generators for Emergency Response (N-1 Conditions)

ENERGEX has available a fleet of mobile standby generators that are used to provide emergency response to sub-transmission and distribution network faults that cannot be rectified by switching. This helps to limit interruption to supply in a manner that minimises customer inconvenience and improves reliability. This fleet of mobile generators also provides the flexibility for 11 kV feeder support during extreme temperature events where existing network assets need to be supplemented.

ENERGEX has a mobile generator fleet of approximately 21 MV.A in total capacity. The fleet includes 37 low voltage generators ranging in size from 60 kV.A to 500 kV.A and four high voltage mobile 1.25 MV.A units. These HV generators are capable of being directly connected to either the underground or overhead 11 kV networks. The ENERGEX mobile units were deployed for feeder load at risk areas during extreme temperature events during the summer period.

In addition to its own equipment, ENERGEX hires low voltage generators if necessary, to ensure there are enough generators for 11 kV feeder support during extreme summer events. This is determined in August/September each year. In summer 2008/09, ENERGEX hired 10 MV.A of low voltage generators comprising of twenty 500 kV.A sets.

3.2.6 Generators for Demand Management Support (System Normal Conditions)

In addition to the measures detailed in Section 3.2.5 regarding the use of mobile generators and enhanced emergency response procedures to improve reliability of supply during extreme temperature events, ENERGEX negotiates network support agreements with customers who are located in network load at risk areas for summer preparedness each year. This initiative commenced during the summer preparedness planning in 2006/07 and is now into the fourth year of operation.

Planning and identification of load at risk areas for 2009/10 summer preparedness has commenced and is expected to be finalised in July/August 2009. The amount of generation required for NCC load at risk areas is expected to be somewhat less than last years (shown in Table 2) due to improving load at risk.

These programs require commercial agreements with customers who have suitable load profiles that could be influenced on exceptional hot weather days. Initiatives include agreements with customers who have:

- Shiftable load;
- Private standby generation that can provide network support; or
- Have agreements allowing ENERGEX to locate generators onsite for network support.

Year	Substations with NCC Load at Risk	Total Required Support	Total Supplied Support	Customer Supplied Support	No of Sites	ENERGEX Supplied Support
2006/07	10	13 MV.A	16 MV.A	7 MV.A	14	9 MV.A
2007/08	8	15 MV.A	17 MV.A	9 MV.A	12	8 MV.A
2008/09	12	33 MV.A	34 MV.A	8 MV.A	19	26 MV.A

Table 2 - Additional Support Required for NCC Load at Risk Sites

In 2008/09ENERGEX has also provided embedded generation at a number of locations as non network solutions aimed at deferring network augmentation capital expenditure. This demand side strategy has been in place for several years and was conceived through ENERGEX's integrated resource planning process. Generators with a combined capacity of 33 MV.A are installed at Tin Can Bay and two ENERGEX zone substation sites, Bromelton and Kilcoy. These provide network

support for contingencies where transformers or sub-transmission feeders are out of service or where there is load at risk during extreme events.

The 3 MV.A of generator support at Tin Can Bay was called on several times during summer 2008/09 and especially during the new year and Australia day long weekends when the population trebled. The peak load exceeded the 10 PoE forecast load of 8.1 MV.A and the rated capacity of the 33 kV feeder supplying Tin Can Bay. The generators were called upon to run for three consecutive days over the new year period demonstrating the effectiveness of the demand management support strategy.

In 2009/10 a further 8 MV.A of embedded generation is anticipated to be utilised in providing non-network solutions at Redland Bay and Russell Island, in addition to the 33 MV.A already installed at Kilcoy, Bromelton and Tin Can Bay.

3.3 Network Resilience

With a large overhead electricity network, there is a high exposure to the elements and severe weather events have a significant impact. In order to minimise these effects, ENERGEX has identified and implemented critical maintenance activities, including a vegetation management program as shown in Table 3 in Appendix 1.

ENERGEX intends to spend approximately $139 million on network operations and maintenance before the end of December 2009 with an intense focus on pre-summer inspection and maintenance.

3.3.1 Vegetation Management

ENERGEX is continuing to invest heavily in its vegetation management program trimming trees near powerlines and is planning to spend more than $59 million in 2009/10. Approximately half of this will be spent by the end of December 2009, in preparation for the summer storm season. By then, ENERGEX is forecasting to have trimmed approximately 6,570 km of the distribution network and 562 km of the transmission network as part of its 2.5 year cycle. Vegetation Management is a major preventative strategy in reducing interruptions during storms.

This level of funding allows the continuation of the 2.5 year vegetation management cycle established in 2004/05 for the entire ENERGEX network, including all of the low voltage network. Live line trimming techniques are being extensively utilised to efficiently clear vegetation that is too close to the powerlines, without requiring the power to be turned off. This will deliver a reduction in planned power outages required for maintenance in ENERGEX's area of supply.

ENERGEX is continuing to cooperatively work with local Councils such as the Brisbane, Ipswich and Redland City Councils to remove problem trees and plant powerline friendly trees. In some instances where removal or trimming is considered undesirable by the local community, alternative solutions are being deployed, such as realignment, insulation of the overhead network or undergrounding.

To further progress this "working together" relationship with councils, ENERGEX is working with suitable organisations to assist with the development of appropriate tree species lists on a council by council basis. Previously, these organisations have helped identify streets and areas for tree replacement programs and worked closely with customers and other stakeholders through a community consultation process to successfully implement these joint programs.

3.3.2 Maintenance Initiatives

In an effort to make further improvements in the performance of ENERGEX's overhead network, particularly during storm seasons, ENERGEX is continuing its reliability initiatives as detailed below.

- Continuation of the systems based or single pass maintenance approach. This involves carrying out all the relevant inspections of the condition of overhead plant and equipment, including adjacent vegetation, on a five year cycle. Included as part of this inspection is the testing of overhead and underground high voltage earthing systems to ensure that earth resistances are low enough to provide efficient lightning protection of overhead lines and effective earthing of metallic pole and ground mounted plant. Other activities include the testing of high voltage line fault indicators, inspection of water way crossings, visual inspection of streetlights and underground pillars and testing and inspecting of a range of other network assets. This approach results in a broader range of network assets being inspected under a single pass, and is aimed at producing reliability outcomes and not just condition assessment.
- Annual pre-storm helicopter patrols of all 33 kV and 11 kV rural overhead feeders began earlier this year. These patrols are used as a proactive measure to identify potential maintenance requirements. They are also used to locate faults after storm events.
- Annual pre-storm vehicle patrols of all 33 kV and 11 kV urban overhead feeders are currently being carried out.
- Thermographic inspections of approximately 1,515 km of overhead feeders are scheduled prior to summer to identify network components that could cause outages during extreme weather conditions. About 20% of 11 kV feeders are scanned every year to achieve a five year assessment period. 33 kV feeders are inspected every two years and were reviewed in the previous 12 month period. Maintenance work arising from these patrols is being prioritised to repair identified "hot spot" defects which have a potential to fail during a severe weather event, prior to summer 2009/10.
- Reading of maximum demand indicators (MDIs) at approximately 15,000 distribution transformer sites, to assess transformer loads and initiate actions to upgrade transformers and low voltage circuits as required. The majority of these are read in the first six months of the calendar year to capture readings from the previous summer peak. Any overloaded transformers are then analysed, and scheduled for upgrade in the following year.
- In addition to improvements to the high voltage distribution network, ENERGEX is continuing its initiatives to improve the performance of the low voltage network, as part of its usual maintenance program. These include low voltage clamp and overhead service replacements in areas close to the sea where corrosion is most prevalent, wide-scale installation of low voltage spacers to prevent the clashing of overhead wires in high winds and storms, the replacement of open wire low voltage lines with ABC (Aerial Bundled Conductor) which is less susceptible to tree and other contact damage, and the replacement of open wire household service wires with insulated conductors. Open wire services are very susceptible to storm damage, and significantly contribute to the number of wires down incidents that ENERGEX experiences during summer storms.
- Timber crossarm failures are a major contributor to the duration of interruptions experienced by rural and urban customers. To reduce their contribution to the industry wide measure of SAIDI (System Average Interruption Duration Index), an accelerated crossarm replacement program commenced in 2006/07. The crossarm replacement target for 2009/10 is 13,100, with an estimated 5,200 planned to be replaced before the end of December 2009.

3.4 Feeder Improvement Program

ENERGEX continues to focus on its 11 kV feeder improvement program, specifically to improve the reliability of low performance urban and rural feeders. A program to improve the reliability of the 10% of worst performing feeders has been in place for several years, with the objective to bring their

average outage duration to within 50% of the ENERGEX average. This is being addressed by a program of systematic feeder reliability assessments that cover all 11 kV feeders as part of ENERGEX's planning process.

The intent of the feeder reliability assessments is to identify ways of improving the performance of a feeder where the level of reliability indicates that major improvements are warranted. Generally, the most common problems are related to configuration, design characteristics and operating environment. The assessment includes consideration of such factors as vegetation, construction type, pole layouts, conductor spacing, network configuration and cable/aerial junction designs. Upon identification of reliability improvement opportunities, individual projects or programs to address deficiencies are initiated and included in the program of work for the following year. More information on this program can be found in the Network Management Plan 2009/10 to 2013/14.

3.5 Bushfire Risk Mitigation

ENERGEX has implemented a long term plan in conjunction with the Queensland Fire and Rescue Service (QFRS) aimed at reducing bushfire threats in South East Queensland.

In the interests of public safety ENERGEX is undertaking the following initiatives to address bushfire risk in South East Queensland:

- Development of an internal Bushfire Mitigation Plan.
- Maintain an active involvement with QFRS in developing bushfire risk plans by attendance at regional Interdepartmental Committees (IDC).
- Raise field staff awareness of appropriate work practices and vehicle use in high bushfire risk areas.
- Keep abreast of developments in the Southern States with regards to mitigation measures.
- Assess the recommendations and findings of the Victorian fires Royal Commission for any learnings and application in ENERGEX.
- Ensure staff are adequately informed about Total Fire Ban days (via SMS or Field Force Automation) and where fires are underway.

The key expenditure items in the 2008/09 Program of work which addresses bushfire risk are:

- Vegetation management program to enable trimming of trees and plants growing near powerlines.
- Pre-summer helicopter and land based inspections of 11 kV and 33 kV feeders.
- Thermo-scanning of 33 kV feeders (2 yearly) and 11 kV feeders (5 yearly) to detect hot joints, clamps and in-line splices.
- Installation of spacers to avoid conductor clashing on low and high voltage lines.

4. Emergency Response

In order to respond to severe weather emergencies effectively in a short period of time, ENERGEX's emergency and disaster response processes have been reviewed and fine tuned.

4.1 Emergency Response

To ensure organisational readiness for a range of network emergencies, ENERGEX reviews and exercises its emergency response procedures on an annual basis. In addition to storm emergencies, the procedures cover response to major network failures, generation and transmission deficiencies and unusual events such as extreme hot weather. When hot weather is forecast, ENERGEX has procedures in place that trigger the instigation of response planning in advance. The procedures are designed to ensure that operational staff are mobilised quickly in the field and that an appropriate structure is in place to manage any emergency, including communication with customers, executive management and other stakeholders.

4.1.1 Corporate Emergency Management

The Emergency Management Structure adopted by ENERGEX recognises various incremental levels of response to incidents depending on the seriousness of the incident's real or potential impact, and the level of resources and expertise required to combat the event. The Emergency Management Framework below sets out the various ENERGEX response levels and describes them in the context of the overall industry by showing higher levels when external intervention is involved. ENERGEX has established an Emergency Management Executive Team to continually review and improve its emergency response process.

ENERGEX recognises that lower level incidents that are best dealt with by local management and crews, can escalate to a higher level due to compounding events, wider ramifications, or as an aggregation of distinctly separate incidents. More serious incidents require more support and a broader base of resources and expertise. In addition, as the number of organisations involved grows, so does the complexity of managing the response and the potential for conflict.

The five level structure shown in Figure 2 reflects standard practice throughout the energy industry, and embraces the above concepts in support of the appropriate response to the incident.

Level 1 – Incident

This is an event (primarily physical incidents) that can be dealt with by local resources without any additional assistance. A Network Services/Control Centre supervisor normally manages this level of incident as part of their normal job function. This level of incident does not need to be declared – it exists as part of normal operations.

Level 2 – Emergency (Red Alert)

This is an incident that is significant and noticeably affects ENERGEX's ability to deliver service and impacts on the community. Emergency Services may be involved in the response, as well as ENERGEX Corporate Communications. For physical emergencies, an operational line manager supporting the emergency from the Control Room generally manages this type of incident. A non-physical incident may need to be managed at a higher level. Dependent on severity, this incident type is likely to require notification to executive management who may escalate the matter to the next level.

Level 3 – Corporate Emergency (Purple Alert)

*This is usually a single or multiple incident affecting ENERGEX, or with some potential for impacts on other industry participants. This level of incident demands the attention and mobilisation of both operational and executive management to combat the impacts of the emergency. An executive **Crisis Controller** should be mobilised to manage a Level 3 event.*
This level of incident generally requires notification to external parties (eg. NEMMCO) who may elect to escalate the situation to the next level.

ENERGEX controlled

Industry/Govt. coordination

Level 4 – Industry Coordinated Response

The impact of this incident goes well beyond ENERGEX's area of operations. The overall system safety and integrity is in jeopardy and the impacts are such that they require the coordinated response of multiple industry participants: NEMMCO mobilises to provide that coordination as required.

Level 5 – Government Intervention

The real or potential impact of the incident escalates to the point that the Government reasonably believes that it needs to intervene. Government may need to deploy the State Disaster Plan, in which case ENERGEX's Counter Disaster Plan will be activated (also applies at lower levels).

Figure 2 - Emergency Response Hierarchy

4.1.2 Measured Response Program

ENERGEX has improved the emergency event response process. Based on a framework of objective escalation triggers, the process of scaling up a response to deal with a major contingency has been critically reviewed in conjunction with the Corporate Emergency Management Plan (CEMP).

Efforts have also been made in improving the coordination of responses with other relevant authorities. A Memorandum of Understanding with the Queensland Fire and Rescue Service has been agreed for implementation prior to the summer period. It will facilitate effective and efficient communications and planning with regards to bush and grassfire mitigation in South East Queensland. ENERGEX is also endeavouring to establish Memoranda of Understanding with a number of Local Councils prior to summer 2009/10 to ensure coordination of vegetation clearing,

removal and disposal during severe storm events, as was experienced at The Gap during November 2008.

In summary, the Measured Response Framework incorporates five levels of activity, based on workload and potential customer impact. These are initiated if Bureau of Meteorology predictions of severe weather or high temperatures, combined with an internal risk assessment indicate that a "Weather Alert" is appropriate. The stages of alert are as follows:

Blue Alert (Level 0): Triggered on forecast severe weather. Involves the cancellation or completion of all planned low-priority work, checking all field vehicles are fuelled and stocked and emergency systems are activated and tested.

Orange Alert (Level 1): Activated when a number of predetermined criteria indicate that abnormal network impact is likely. Standby staff are called in, additional staff are sent to the Contact Centre and the Control Centre. Heightened workload, but no special actions beyond normal working procedures are required.

Red Alert (Level 2): Activated when a number of predetermined criteria, such as significant lighting activity, severe storm warnings, severe winds and forecast temperatures above 37 degrees, indicate that major disruption to power supply is almost certain. All available resources are called in, including chance availability staff not on formal standby rosters. All support staff, including technical services, computer systems support and storm-room central resource coordination are active. Contact Centre staffed at maximum capacity.

Purple Alert (Level 3): Full activation of the CEMP, when circumstances require executive involvement in prioritisation, customer management and situation coordination. Resources may be imported from outside ENERGEX.

Green Alert: Cancels all specific emergency response activity.

4.1.3 Forecasting of Extreme Weather Events

ENERGEX has established an ongoing arrangement with the Bureau of Meteorology to provide a range of weather forecasting services to assist in preparation for severe weather events. The data is provided on an ENERGEX specific internet website and includes:

- Current wind speed, wind direction, temperature and humidity conditions;
- Historical observations of this weather data;
- Comments on observed data and weather patterns specific to the ENERGEX area;
- A nine day high resolution forecast of temperature and wind speed;
- General forecasts and weather warnings;
- Links to satellite and radar information and displays; and
- Longer term climate outlook forecast.

Access to this type of information, particularly days in advance of a pending severe weather event, enables ENERGEX to make measured decisions on the potential impact of the threat, and prepare the necessary organisational response, including escalation to stakeholders and other external parties if required.

The forecast of a hot weather day triggers the formation of the Hot Weather Technical Committee that makes forward operational decisions on matters such as resource availability and the cancellation of any planned switching sheets to ensure the network is "normal". The committee also determines whether to accelerate the return to service of any critical plant temporarily out of service and initiates paging notification to staff advising of plan preparations. Responsibilities also include

keeping the Emergency Management Executive Team informed of proceedings to ensure that ENERGEX delivers the right level of response for the incident.

4.1.4 Simulation of Significant Events, Storms, Extreme Hot Weather and Critical Asset Failure

ENERGEX will conduct three simulation exercises before summer 2009/10 to test process and systems and train new staff.

A full storm readiness exercise, is planned to test all information systems, staff, emergency procedures and processes. The exercise will be as realistic as possible. All major information systems used in times of network emergencies, including those in the customer Contact Centre, fault dispatch and Network Control will be tested as part of the simulation exercise to assess their readiness for summer.

In addition to the storm readiness exercise ENERGEX will conduct two other simulations, one to test Corporate Emergency Management processes and a joint exercise with ERGON to test mutual support processes in the event of a major incident.

Other tests will be carried out as follows:

- A full stress test of information technology, Contact Centre and emergency telephone systems at above peak levels;
- Expanded staff training for all staff in standby roles throughout September and October; and
- Regular minor trials of systems at regular intervals throughout the summer period.

4.1.5 Other Preparations

Training schedules for all emergency related activities are being prepared for ENERGEX personnel to ensure safe working conditions at all times.

All major facilities that are used by ENERGEX during network emergencies, including the media centre and backup Contact Centre are being fully tested and prepared prior to summer 2009/10.

ENERGEX's Information Technology (IT) Systems provider also has a summer preparedness plan to ensure all IT systems necessary for the operation of the network have been tested and are ready for the storm season.

5. Resource Planning and Responsiveness

5.1 Human Resources

ENERGEX recognises the importance of maintaining a skilled and adequate workforce to meet the requirements of the enhanced capital works program and ensure an efficient response to network emergencies. Over recent years, ENERGEX has invested heavily in recruitment of skilled tradespersons and other technical staff essential for the delivery of a significant POW. To ensure it has the capacity to deliver its POW in 2009/10 and beyond, ENERGEX has set a sustainable internal resourcing target and will complement existing external contracting arrangements with new agreements in some key technical skill areas (eg. cabling, substation design). Ongoing workforce programs such as the tradesperson recruitment program, apprentice program, paraprofessional traineeship program and graduate programs will continue to be enhanced and strategies to ensure the retention of employees will be further developed.

ENERGEX will continue its successful strategy to achieve continued growth in workforce capability and capacity through:

- Continued local and interstate recruitment campaigns to access new candidate pools;
- Ongoing enhancements to training and placement strategies to enable the integration of an increased number of apprentices and tradespeople without electricity utility experience;
- Use of power worker roles to support tradespersons where this will facilitate better use of critical skill sets;
- Continued apprentice intakes to provide future tradesperson resources; and
- Development of a new sourcing strategy and internal recruitment process that will address recruitment process effectiveness, candidate experience, employment branding and candidate attraction factors in an integrated manner.

For those critical roles and skill gaps where a combination of industry and ENERGEX specific knowledge is required, transfer and promotion from internal sources remains a primary strategy. Core training, leadership development and succession planning strategies will be utilised to build internal capability.

5.2 Support Services and Facilities

In addition to the initiatives listed above, which are targeted directly at the ability to meet an increase in field work, measures are also being put in place to ensure adequate support services and facilities, including:

- Implementing an enhanced Contact Centre resourcing plan, with faster call-out capability and a greater spread of skills across all Contact Centre staff;
- Enhancing the “Mates” and "Chance Availability" program (this uses other trained office staff to assist in times of an emergency) for greater reliable access to staff that are not on formal standby rosters;
- After hours standby rosters have been reinforced with the addition of new field staff;
- Single point of contact lists in Hub Storm Rooms covering key contract resource requirements;
- Traffic Control resource available across the storm season with standby arrangement over Christmas/New Year period;
- Ongoing contract support is continuing to contribute to the delivery of the work program, including preventative maintenance. Contract resources are now available for emergency response, with this requirement now being included as a standard clause in applicable service provider contracts. For example, ENERGEX has emergency response arrangements with up to four service providers in the area of overhead service replacements

and seven service providers with over 300 field staff for emergency vegetation management; and
- Helicopter resources are available for feeder patrols.

5.3 Cooperation from Interstate / Other Businesses

Agreements are already in place with service providers and the relevant unions, including:

Local:

- Current ENERGEX Contractors with ENERGEX rating;
- Contractors with no ENERGEX rating (including traffic controllers who have also been trained to be on call for wires down and stand guard duties); and

Remote:

MOUs are in place with Ergon Energy, Country Energy, Energy Australia, Integral Energy and Powerlink to share resources in an emergency. Induction processes are available for these organisations when they are called on for assistance.

6. Contact Centre Capability

The focus of the ENERGEX Contact Centre in 2009/10 will continue to be on the maintenance of its capability to respond to up to 100,000 customer calls per hour via:

- Up to 50,000 caller specific outage messages on the IVR (interactive voice response);
- Up to 45,000 generic outage messages on the IVR which are postcode based; and
- Up to 5,000 direct responses from a Customer Service Representative.

Under actual operational conditions, the mix of calls cannot be predicted, and a higher number of caller specific messages per hour may be achieved at the expense of the number of generic messages per hour. In 2008 under controlled conditions, the system attained over 75,000 specific messages per hour.

The primary objective will be to build upon the outstanding customer service record, through the delivery of enhancements to existing systems and the delivery of new initiatives. These will further enrich the effectiveness of its operational response to network emergencies (which includes both Loss Of Supply and Emergency customer calls) through the provision of:

- Faster response times to network emergencies with increased service options for customers;
- A well resourced and trained pool of staff, with a safer working environment for staff responding to storm events; and
- A reliable telephone service with mature and well defined processes and procedures that are regularly reviewed and tested.

6.1 General

The Contact Centre will build upon the last four years preparedness for storm season by increasing the choice available to customers through the provision of:

- The introduction of a new IVR option to report network damage which will receive higher priority over general loss of supply reports from customers. This will assist in increasing the timely identification and restoration of network faults.
- The option to report a loss of supply via IVR when Customer Service Representatives are all occupied with loss of supply calls from customers.
- The capability to provide customers with automated notification of outage restoration, as well as mass notification of weather conditions and extended outages.

The Contact Centre's capability in a network emergency to quickly respond to customers will be enhanced through the introduction of the capability for Standby Staff to respond to Loss of supply and Emergency customer calls from home. This has the potential to assist with staff safety in terms of travelling to the ENERGEX Contact Centre during a storm. A review of Contact Centre start up procedures and notifications will also further improve the initial response rates to network emergencies.

The Contact Centre storm response pool (over 300 staff across ENERGEX who have volunteered to assist response to customer telephone enquiries during network emergencies) will undertake intensive storm management refresher training, including processes for a large scale event, systems training and logistics of attending a storm response out of normal business hours. This training will be tested prior to the commencement of 2009/10 storm season in October, and reinforced through monthly desktop exercises.

A full review of all existing storm processes will be conducted prior to the commencement of the 2009/10 storm season. This includes the confirmation of the mutual Disaster Assistance Plan with Ergon Energy Contact Centre, as well as the existing in-source staffing agreements through a number of external recruitment companies.

A technical load test of the telecommunications platform will be undertaken in September to confirm its 100,000 calls per hour capability post the implementation of the abovementioned enhancements.

6.2 Contact Centre Emergency Capability

The storm event in November 2008 in the Brisbane suburb of The Gap and surrounding areas identified the risk associated with overload under high usage for direct inbound calls for the emergency line (131962). This risk will be mitigated by the introduction of an enhancement which will enable the routing of emergency calls to the loss of supply IVR during peak call loads. The loss of supply IVR includes a prioritised option for customers who select “Emergency”. This will improve the response rate for life threatening emergency calls in an extreme volume situation, and will assist in the filtering of non-emergency calls to the correct loss of supply IVR.

The Contact Centre system enhancements planned for 2009/10 have been reviewed and approved by an external IVR strategy specialist.

7. Public Communications

ENERGEX places a high priority on providing timely and accurate communications to the community, the media and its primary stakeholders during times of significant network events, especially during storm season. ENERGEX has been recognised for its innovative, proactive and transparent communications strategies in the past couple of years that have delivered improved information flows to its customers, both in terms of quantity and quality. These strategies will be repeated and improved in the 2009/10 storm season through projects to ensure the delivery of information to all customers and stakeholders.

The primary objectives of these projects include:

- Reducing the customers' reliance on the telephone to obtain information regarding power outages, by establishing professional relationships with radio and TV stations throughout South East Queensland to provide frequent and comprehensive updates during severe weather events.
- Continuing to provide an internet based public information facility to provide latest available information on outages and estimated restoration times to stakeholders, the media and customers.
- Enhancing media liaison processes and relationships with all electronic media to ensure information is disseminated effectively and efficiently during storms, through providing frequent access by radio stations and other media to key staff familiar with the up-to-date power outage situation. Live or recorded interviews will again be supplemented by pre-recorded interviews by Corporate Communications staff being placed on the ENERGEX website for media to access and use.
- Enhancing the public's understanding of power outages during extreme weather (storms and very hot days) via a comprehensive community information program in conjunction with emergency service providers and local governments to deliver the following messages:
    - Prepare for storm season;
    - Safety - stay away from fallen powerlines; and
    - Demand management and energy efficiency messages.
- Maintaining a priority of public safety through storms, by continuing to promote various storm safety related messages including the importance of avoiding fallen powerlines during storms.

8. Safety Initiatives (For Both Staff and the Community)

8.1 Safety of the Community

ENERGEX is further developing its commitment to the safety of its customers and staff prior to this summer by:

Promoting public awareness of the dangers of fallen powerlines and "Working Close" through an extensive media and communication campaign including the development of publications that reinforces this message and warns people to keep clear.

The Community Safety Plan provides a strategic whole of business approach to community safety across the ENERGEX community. It is underpinned by data analysis designed to identify key risk exposures that leads to the implementation of programs and maintenance opportunities to minimise community and business impact through appropriate Risk Management Strategies.

The focus of the community safety plan is to analyse and monitor incident causes and develop programs that support a successful community safety outcome. The determination of the focus areas is to ensure that reporting is accurate and reliable so that the data is available to meet the needs within the community safety framework and assist in the delivery and development of educational information sessions and consultation with stakeholders in order to reduce the number of impacts identified by data analysis. We will continue to monitor and review the number of incidents defined in the key result areas.

8.2 Safety of Staff

ENERGEX is committed to an objective of being be an injury-free workplace. The business is implementing strategies to optimise existing processes which are driving strong safety performance outcomes, in addition to introducing new processes, systems and associated behavioural change to increase safety awareness and responsiveness. Current performance indicates the strategies implemented are contributing towards a strong improvement towards the goal of an injury free workplace.

ENERGEX has reinforced a focus on safety by nominating safety as its first priority, and instituting zero injuries as a key measure across the entire ENERGEX Group. In 2009/10, ENERGEX will continue to deploy safety initiatives to support the safety of its employees, contractors and the community.

Deployment of the Corporate Health and Safety Plan that identifies ENERGEX's top safety risks and appropriate strategies to control those risks will form the basis for ENERGEX's safety efforts over the next five years. The strategy is focused on ensuring that ENERGEX achieves continued improvements in safety performance and will involve:

- Identifying the key areas of risk currently pertaining to the business and implementing systems, processes and plant to address these risk areas;
- Introducing cultural change programs to enhance safe behaviour; and
- Enhancing data capture systems and reporting to better measure safety-related incidents and trends, and producing lead and lag measures targeting safety improvements.

In addition, other new and continuing initiatives to improve the organisation's safety performance include:

- Further work on clearly defining working live tasks;
- A comprehensive review of the systems in place for driving vehicles/road safety;

- A comprehensive review of the systems in place for managing fatigue;
- A comprehensive review of the health and wellbeing program, including a focus on the risk associated with an ageing workforce;
- Implementation of a Just Culture approach following investigations into safety incidents;
- Deployment of an Alcohol and Other Drugs standard across Energex;
- Review of the process in place for Standard Products and Services;
- Deployment of the Office Safety Standard and guideline;
- Continued assessment of identified plant, tools and equipment;
- Continued assessment of manual tasks and implementation of risk controls; and
- Continued implementation of the Zero Incident Process (ZIP) Program in Energy Delivery

In response to the growing use of contractor services, ENERGEX has increased its focus on and resources allocated to ensuring contractor safety programs and performance meet ENERGEX's standards.

9. Appendix 1 - OPEX and Network Capacity & Security Program

OPEX (MAINTENANCE PROGRAM)	Target	Scheduled
Distribution transformer maximum demand indicators to be read	15,000	Jan – Jun 2009
11 kV feeders to be patrolled	1,396	Jan – Jun 2009
33 kV feeders to be patrolled	185	Jan – Jun 2009
LV spacers to be installed	2,017	Jul – Dec 2009
Length of distribution line over which vegetation clearances will be improved	6,570 km	Jul – Dec 2009
Length of transmission line over which vegetation clearances will be improved	562 km	Jul – Dec 2009
Timber crossarms to be replaced	5,200	Jul – Dec 2009

Note 1: Inspection works are generally scheduled between January to June to allow any identified deficiencies to be remedied in the second half of the year prior to summer.

Table 3 - Operating Expenditure Works to Dec 2009

Project Description	Total Project Budget	2009/10 Project Budget	Planned Commission-ing Date
1. Cleveland. Install a new high voltage feeder to increase network capacity.	$7,586,013	$81,075	Jul 09
2. Beenleigh. Upgrade existing transformer for increased network capacity. (Stage 1 completion only required for SPP)	$10,431,317	$1,024,645	Jul 09
3. Annerley. Replace underground cables nearing end of life with new larger cables.	$8,014,550	$397,274	Aug-09
4. Caboolture. Establish a new zone substation to boost network capacity.	$7,673,075	$1,325,436	Aug-09
5. Bribie Island. Install a second substation module for increased network capacity.	$9,065,378	$56,757	Aug-09
6. Mudgeeraba. Establish a 110 / 33kV bulk supply substation.	$8,562,800	$3,816,302	Aug-09
7. Victoria Point. Install second module for increased network capacity and improved network reliability.	$5,198,057	$536,786	Sep-09
8. Nudgee. Install a fourth transformer for increased network capacity.	$3,608,134	$396,718	Sep-09
9. Mango Hill – Hays Inlet. Establish new high voltage feeder.	$5,554,039	$919,366	Sep-09
10. Kalbar. Increase substation capacity.	$4,357,134	$198,914	Sep-09
11. Boonah. Install a substation module for increased network capacity.	$6,735,582	$4,322,922	Oct-09
12. Woodford. New high voltage feeder for increased network capacity.	$6,517,309	$3,939,115	Nov-09
13. Gaven. Install second substation module for increased network capacity and improved network reliability.	$5,973,664	$3,815,096	Nov-09
14. Cooroy. Install additional 132kV substation capability.	$4,724,536	$2,705,400	Nov 09

Project Description	Total Project Budget	2009/10 Project Budget	Planned Commission-ing Date
15. Kalbar. Establish a new 33kV feeder from Kalbar to Boonah.	$5,628,252	$56,757	Dec -09
16. Southport. Increase substation capacity by installing third transformer.	$17,129,108	$3,786,324	Dec-09
17. Coorparoo. Install high voltage switchgear to improve network performance.	$5,144,078	$2,319,055	Dec-09
18. Woodford. Upgrade capacity at existing substation.	$6,905,845	$1,080,420	Dec-09
19. Loganholme. Install a new 33kV feeder between Loganholme and Beenleigh substations.	$3,723,618	$219,398	Dec-09
20. North Springwood. Install a third 110/11 kV transformer. (Partial completion required for SPP)	$8,501,923	$5,185,921	Jun-10

Note 1 – The planned commissioning date is the project stage when the works are complete except for minor omissions or defects which do not prevent the works from being reasonably used for their intended purpose. Where commissioning is deferred by up to 3 months for valid reasons such as project reprioritisation, this delay is generally accepted as being within the reasonable margin for completion.

Note 2 – Capital expenditure in 2009/10 dollars and based upon 2008/09 initial overhead rates which were under review at time of writing.

Note 4 –Project timings may be adjusted and/or additional projects may be included to meet customer requirements and manage network risk according to internal governance policy.

Table 4 - Network Capacity & Security Program, Pre-Summer 2009/10

10. Appendix 2 - SPP Monitoring and Review

The key initiatives outlined within this plan, together with a timetable for their delivery are summarised in Appendix 1. ENERGEX has established an internal monitoring and review process for these deliverables. A SPP coordination committee has been established to monitor SPP program performance and take corrective action as necessary. Each of the performance targets listed in this plan is a corporate key performance indicator and is reported monthly to management. The SPP coordination committee has instituted weekly reporting of some of the more critical measures warranting closer scrutiny. A consolidated checklist of activities monitored by this committee is shown in Table 5.

CHECKLIST ACTIVITY		Target
Network Capacity and Security (SPP Sn 3.1 & App 1)		
1.	CAPEX expenditure	$474 M
2.	Implement projects as per Appendix 1	20 Projects
3.	Net augmentation of bulk substation capacity (MV.A)	160 MV.A
4.	Net augmentation of zone substation capacity (MV.A)	243 MV.A
5.	Upgrades of 11kV feeders	82
6.	MDI upgrades of distribution transformers	173
Network Contingency Planning (SPP Sn 3.2)		
7.	Preparation of contingency plans	
8.	Deployment of additional power transformers at designated substations	
9.	Deployment of two mobile 33/11 kV substations	
10.	Preparation of ENERGEX owned mobile generators for rapid deployment	
11.	Preparation of demand management initiatives	
12.	Monitor summer loads and amend load forecasts as required	
13.	Lease agreements in place for mobile generators for feeder support, NDM backfill or emergency response	
14.	Network Demand Management generation total capacity	
15.	Mobile generator capacity – leased for NDM backfill	
16.	Network support agreements with customers located in network load at risk areas	
17.	Identify NDM areas with NCC load at risk	
18.	Required support in MV.A for NDM areas with NCC load at risk	MV.A
19.	Customer supplied capacity support (MV.A)	
20.	ENERGEX supplied generation capacity support (MV.A)	
Network Resilience (SPP Sn 3.3 & App 1)		
21.	OPEX expenditure	$139 M
22.	Distribution transformer maximum demand indicators to be read (Jan – Jun)	15,000
23.	11 kV feeders to be patrolled (Jan – Jun)	1,396
24.	33 kV feeders to be patrolled (Jan – Jun)	185
25.	Reliability assessment of 11kV feeders	
26.	LV spacers to be installed	2,017
27.	Length of distribution line over which vegetation clearances will be improved	6,570 km
28.	Length of transmission line over which vegetation clearances will be improved	562 km
29.	Timber crossarms to be replaced	5,200
30.	Thermographic inspections of overhead feeders	1,515 km
31.	Testing of overhead HV earthing systems	

CHECKLIST ACTIVITY	Target
32. Testing of underground HV earthing systems.	
33. Testing of HV line fault indicators	
34. Inspections of water way crossings.	
35. Streetlight inspections.	
36. Underground pillar inspections.	
37. Low voltage clamp replacements	
38. Overhead service replacements(concentric and open wire).	
Feeder Improvement Program (SPP Sn 3.4)	
39. Reliability assessment of 11kV feeders	
Bushfire Risk Mitigation (SPPSn 3.5)	
40. Develop Bushfire Mitigation Plan	
Emergency Response (SPP Sn 4)	
41. Review emergency response procedures	
42. Conduct emergency response procedure exercises	
43. Continue arrangements with Bureau of Meteorology for severe weather warning	
44. Conduct storm readiness exercise	
45. Conduct Corporate Emergency Management exercise	
46. Conduct joint emergency exercise with ERGON	
47. Prepare training schedules for emergency staff	
Contact Centre Capability (SPP Sn 6)	
48.	
49. Conduct refresher training for contact centre staff	
50. Stress test contact centre IVR capacity and associated systems	100,000 calls per hour
51. Stress test contact centre IVR caller specific response capabilities	50,000 calls per hour
52. IVR customer satisfaction with interactive voice response	
53. IVR software enhancements	
Public Communication (SPP Sn 7)	
54. Conduct summer media campaign	

Table 5 - Monitoring and Review Checklist