

**SUBMISSION TO THE HOLMES
INQUIRY**

2010/2011 FLOOD EVENTS

ENERGEX LIMITED

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GLOSSARY

Term	Definition
BCC	Brisbane City Council
BCA	Building Code of Australia
BCP	Business Continuity Plan
BoM	Australian Government Bureau of Meteorology
Building Act	<i>Building Act 1975 (Qld)</i>
Building Regulations	<i>Building Regulations 2006 (Qld)</i>
CEMP	ENERGEX Corporate Emergency Management Plan
Electricity Regulation	<i>Electricity Regulation 2006 (Qld)</i>
ENERGEX	ENERGEX Limited ACN 078 849 055
Flood events	2010/2011 flood events in Queensland
Flood Plan	ENERGEX Flood Risk Management Plan 2010/2011
GOC	Government Owned Corporation established under the <i>Government Owned Corporations Act 1993 (Qld)</i>
Gympie Flood Plan	ENERGEX Gympie Flood Plan
kV	Kilovolts
kVA	Kilo Volt Amperes
MEA	Master Electricians Australia
Q100 Flood Levels	Flood level set on the basis of a one in 100 year flood event
RMU	Ring Main Unit terminal on a 11kV substation
SDMG	State Disaster Management Group established under the <i>Disaster Management Act 2003 (Qld)</i>
SP Act	<i>Sustainable Planning Act 2009 (Qld)</i>
SP Reg	<i>Sustainable Planning Regulation 2009 (Qld)</i>
Tier 1 BCP	ENERGEX's BCP that co-ordinates business continuity for the whole of ENERGEX
Tier 2 BCP	ENERGEX's group or location based BCPs that maintain critical business functions
Tier 3 BCP	ENERGEX's BCPs that ensure the provision of critical resources to critical business functions identified in Tier 2 plans

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SUBMISSION TO THE HOLMES INQUIRY INTO THE 2010/2011 FLOOD EVENTS

ENERGEX LIMITED

1. PURPOSE

- 1.1 The purpose of these submissions is to assist the Commission of Inquiry by:
- (a) detailing ENERGEX Limited's (**ENERGEX**) response to the 2010/2011 flood events in Queensland (**flood events**);
 - (b) from ENERGEX's perspective, identifying opportunities for improvement arising out of the flood events.

2. SUMMARY

- 2.1 On Monday 10 January 2011, the catastrophic events in Toowoomba and the Lockyer Valley compounded what was already a significant flood in the Upper Brisbane Valley resulting in wide spread flooding throughout South East Queensland. Further rainfall in the Brisbane Valley resulted in a major flood of the Brisbane River. The result was a natural disaster on a scale which has not been seen in Queensland since the 1974 Queensland floods.
- 2.2 Water and electricity do not mix. As the entity responsible for the distribution of electricity throughout South East Queensland, ENERGEX's paramount priority at all times during the flood events was to ensure it took whatever steps necessary to protect the safety of the community and ENERGEX workers.
- 2.3 Once it was safe to do so, ENERGEX's objective was to restore power to the community as quickly as possible.
- 2.4 The key challenges for ENERGEX created by the flood events are summarised below.

Pre-emptive Interruption to Supply

- 2.5 On 12 January 2011, in order to protect the safety of the community and reduce the potential for damage to ENERGEX assets, power supply was disconnected to:
- (a) approximately 10 major commercial and industrial sub-stations in the CBD in preparation for the rising flood water; and
 - (b) around 120 feeder systems throughout Brisbane and Ipswich. ENERGEX also removed as much equipment from sub-stations as possible in order to minimise damage to those sub-stations at risk from the flood water.

Damage to the ENERGEX infrastructure and assets

- 2.6 The flood events seriously affected ENERGEX's electricity assets in South East Queensland. In summary:
- (a) 25 zone substations were interrupted either due to flood inundation of the substation or loss of incoming supply lines due to the flood;
 - (b) four zone substations (Milton, Archerfield, Jindalee and Oxley) were directly affected by flood waters with Archerfield out of service for 10 days until major plant overhauls and testing were completed;

- (c) 95 poles had to be replaced, most in the western region;
- (d) a total of 101 pad mounted and ground distribution transformers were removed and replaced;
- (e) 98 kilometres of overhead line was replaced; and
- (f) 10 major electricity supply points in the CBD were impacted resulting in loss of supply to some 21 CBD buildings, with 4 CBD substations out of service for 7 days.

Restoration of Supply

- 2.7 While the flood event itself lasted only three days, the restoration phase has been a significant and ongoing undertaking for ENERGEX.
- 2.8 During the flood event ENERGEX isolated low voltage supply to flood affected premises by removal of pole or transformer fuses or disconnect links. During the restoration, the 11 kV network was progressively energised from the substation to the dry disconnection points. The 11 kV to 415 volt transformers were then energised to allow reconnection of the LV supply to the premises.
- 2.9 ENERGEX also developed a number of work practices to deal with flood affected distribution equipment including the reconnection of premises. These include cleaning and drying the various electrical components, checking insulation levels, changing oil and replacing certain types of underground cable terminations.
- 2.10 While the cleaning and the majority of restoration of the ENERGEX network was completed in one week, the reconnection of most flood-affected properties extended over a longer period.
- 2.11 This was primarily due to safety considerations - many properties had to be individually disconnected from the network, checked for electrical safety by a private electrician and then reconnected to the ENERGEX network.

Positive outcomes from ENERGEX's management of the flood events

- 2.12 ENERGEX's planning and response to the flood events worked effectively to meet the substantial challenges it faced. Most importantly:
 - (a) ENERGEX's overriding objective to ensure the safety of the community and the safety of staff was met. During the flood event there were no lost time injuries (i.e. injuries where employees were away from work) of ENERGEX staff, and no significant electrical incidents in the community.
 - (b) Supply was able to be restored to approximately 90% of the high voltage feeders (at the substations) by the end of 15 January 2011.
- 2.13 Despite unavoidable power interruptions throughout South East Queensland, a full and frank communication strategy with the public resulted in ENERGEX retaining the support of the general public in difficult times.

Opportunities for Improvement

- 2.14 For any organisation, an event of the magnitude of the flood events provides the opportunity to see the organisation's emergency planning and response systems work in action.
- 2.15 ENERGEX is taking full advantage of the opportunity to improve its processes by conducting a full review of the flood events in order to identify any improvements it can make to its current systems and processes.
- 2.16 Where the review identifies matters affecting ENERGEX's preparation for Summer 2011/2012 these matters will be factored into ENERGEX's internal planning processes including the Network Management Plan, the Summer Preparedness Plan and the Flood Risk Management Plan.
- 2.17 ENERGEX has already identified a number of areas where there is an opportunity for improvements. Some of these opportunities relate to ENERGEX's internal processes while others relate to issues affecting the wider community.
- 2.18 The learning and improvement opportunities identified by ENERGEX to date are set out in **Section 11** of this submission.

3. ABOUT ENERGEX

- 3.1 ENERGEX is a Government Owned Corporation (**GOC**) established under the *Government Owned Corporations Act 1993* (Qld). It is an electricity entity as defined in the *Electricity Act 1994* (Qld).¹
- 3.2 ENERGEX is responsible for the electricity distribution network throughout South East Queensland, including the regions of Brisbane, Ipswich, Gympie and the Lockyer Valley which were affected by the flood events. A map of ENERGEX's coverage is contained in **Schedule A** to this submission.
- 3.3 ENERGEX supplies electricity to a population of more than 2.8 million people. It owns the electrical distribution infrastructure required to supply electricity to these customers. It employs approximately 3,800 employees.
- 3.4 An explanation of the ENERGEX network is contained in **Schedule B** to this submission. This explanation gives context to this submission and the challenges ENERGEX faced in relation to:
- (a) the effect of flood damaged infrastructure on the ENERGEX network;
 - (b) maintaining and restoring power supply, in both flood water affected and non-flood water affected areas of South East Queensland;
 - (c) why ENERGEX took pre-emptive steps to disconnect supply in areas which were at risk of inundation from flood water; and
 - (d) the reasons ENERGEX structured its restoration and recovery process in the way it did.

4. CHRONOLOGY OF EVENTS

- 4.1 The flood events unfolded very quickly over a relatively short period of time. While a substantial amount of pre-planning had been undertaken by ENERGEX in contemplation of a flood event, ENERGEX's actions and response plan had to adapt in 'real time' to take into account current information about the likely impact of the flood waters.

¹ Section 21, *Electricity Act 1994*
ME_90880691_2 (W2003)

- 4.2 To give a useful picture of how the flood event developed from ENERGEX's perspective, a detailed chronology of ENERGEX's steps before, during and after the flood event is set out in **Schedule C** to this submission.

5. SAFETY OUTCOMES

Pre-emptive Disconnection of Supply

- 5.1 During the flood events power supply was disconnected by ENERGEX to:
- (a) approximately 10 major commercial substations in the CBD in preparation for the rising water;
 - (b) around 120 feeder systems throughout Brisbane and Ipswich.
- 5.2 ENERGEX also removed as much equipment from the substations as possible in order to minimise damage to those substations at risk from the flood water.
- 5.3 The decision to pre-emptively disconnect supply was driven by two factors:
- (a) the need to prioritise safety of people above all other factors; and
 - (b) to assist in the timely reconnection of supply by reducing the potential for damage to assets.

Safety as a Priority

- 5.4 In the 1974 flood event ENERGEX understands there was at least one electricity related fatality (although ENERGEX has been unable to identify the precise number of fatalities in 1974 which might be regarded as electricity related).
- 5.5 ENERGEX's primary and overarching objective during the flood events was to maintain safety as the priority. As explained in ENERGEX's media release on 11 January 2011:
- 'No-one should underestimate the old adage that power and water don't mix, and as the water continues to rise ENERGEX will be taking a safety first approach under these extreme weather conditions.'*
- 5.6 Water provides a path for electricity. As a result, when electrical equipment is submerged short circuits will occur. This has the potential to damage equipment so that it becomes unserviceable and, in some cases, cause the equipment to fail explosively, risking injury to staff or other people nearby.

Reconnection Process

- 5.7 It is also important from a reconnection perspective that power is disconnected to allow sufficient time for ENERGEX crews to remove critical plant prior to inundation.
- 5.8 This allows a quicker re-connection process because critical parts of the assets (for example, relays, batteries and other critical items) do not become damaged by water and can be reinserted once the water subsides.

Implementation of Decision to Pre-emptively Disconnect Supply

- 5.9 On 11 January 2011 the predicted flood levels for the Brisbane River were revised upwards throughout the day.
- 5.10 ENERGEX relied upon the Brisbane City Council (**BCC**) Local Disaster Centre Situation Reports and maps provided by BCC's Spatial Information Services to assess the areas of the ENERGEX Distribution Network at risk of inundation from the flood waters. These

reports were released by the BCC on a regular basis. ENERGEX overlaid the BCC flood information onto its own maps of the electrical network.

- 5.11 ENERGEX prepared plans on the basis that disconnection of supply might be necessary. The objective of these plans was to switch power off **before** the inundation of ENERGEX assets occurred.
- 5.12 On the afternoon of Tuesday 11 January 2011 the information ENERGEX received from the BCC was that:
- 'Based on the likely Wivenhoe release strategy (6,400 m³/s this evening 8:00pm), the predicted peak flood height at the Brisbane City Gauge is between 5 m AHD and 5.5 m AHD, (10,500 m³/s). The timing of this predicted peak is 3AM Thursday morning 13/01/11. This flood event will be similar to the 1974 flood.'*
- 5.13 On the basis of these predictions, ENERGEX's Corporate Emergency Response team made the decision to pre-emptively interrupt supply to potentially impacted areas. The decision was made in accordance with ENERGEX's right under section 40E of the *Electricity Act 1994* (Qld) and clause 12.2 of the Standard Connection Contract contained in the Electricity Industry Code made under the *Electricity Act 1994* (Qld).
- 5.14 ENERGEX then initiated its plans to start evacuating equipment and isolating supply from the Brisbane CBD and other areas on the evening of 11 January 2011. A media release went to the public at 5.00pm on 11 January 2011 indicating interruptions would start from 7.00am the following morning.
- 5.15 The decision was also communicated by ENERGEX on 12 January 2011 to the relevant stakeholders at the first meeting of the State Disaster Management Group (**SDMG**) that ENERGEX was invited to attend. At the SDMG meeting, the Police and BCC advised ENERGEX that they would coordinate evacuation and needed time prior to disconnection to do so.
- 5.16 ENERGEX advised the SDMG meeting that:
- (a) ENERGEX would provide notice to tenants where feasible but if water is coming into a building substation then ENERGEX had no choice but to switch off power immediately; and
 - (b) any undue delays in disconnecting power would cause excessive damage to ENERGEX equipment resulting in cost and extensive delays in restoration.
- 5.17 Agreement was reached at the SDMG for the shutdowns to proceed and the process (including a priority plan for disconnection) commenced soon afterwards on Wednesday morning.

The Lockyer Valley

- 5.18 The Lockyer Valley flash flooding event was an extreme event which occurred without warning. It should be considered separately.
- 5.19 ENERGEX was not able to make pre-emptive disconnection in relation to the Lockyer Valley event. This course of action was simply not available in circumstances where the water inundated the Lockyer Valley area with no warning and great force. As a result, switches controlling a number of 33 kV and 11 kV automatically tripped.
- 5.20 Where automatic switches are tripped (as opposed to being pre-emptively disconnected) the time it takes to repair the equipment and reconnect supply can be greater.
- 5.21 Importantly, however, the automatic switches worked as they should in an emergency situation. There were no electricity related injuries or deaths in the Lockyer Valley as a

result of the devastating flash flooding in that area. This result is attributable to all of the automatic switches operating in accordance with their design.

Central Business District

- 5.22 CBD substations and buildings that were required to be shut down were generally located below ground level and were subject to inundation.
- 5.23 In addition there were many transformer sites that supply individual buildings or street shops and offices that were also shut down due to the risk of water ingress or inspection after the flooding. Some supply was also interrupted to buildings where that supply connected to a flooded building.

Milton

- 5.24 Around noon on Wednesday 12 January 2011, flood waters impacted on Suncorp Stadium at the Castlemaine Street side. The supply sub-station became submerged by the flood waters. When the flood waters reached the 11kV terminals of the Ring Main Unit (**RMU**), there was an explosive electrical fault. ENERGEX did not have time to pre-emptively disconnect this substation, as its resources were already committed to other competing priorities at that time.
- 5.25 The flood waters also damaged the low voltage switchboard supplied by the distribution substation, rendering the power supply and fire protection system on the Castlemaine street side of the stadium out of service.
- 5.26 The incident demonstrates why pre-emptive supply disconnection is far preferable where this can be achieved. However, it also demonstrates that, although not the preferred position, ENERGEX's automatic safety switches operated as they should in terms of shutting off supply to the sub-station.

Ipswich and Brisbane Suburbs

- 5.27 The majority of premises pre-emptively disconnected were in the Ipswich and Brisbane suburbs. The customers disconnected were disconnected on the basis of flood predictions of 5.5 m or above late on Tuesday 11 January. All electricity assets likely to be inundated (or those connected to assets likely to be inundated) were disconnected.

Outcome

- 5.28 ENERGEX's decision to pre-emptively disconnect supply was obviously correct and occurred in circumstances where:
 - (a) there were no electricity related injuries or fatalities during the flood event;
 - (b) Supply was able to be restored to approximately 90% of the high voltage feeders (at the substations) by the end of 15 January 2011.

6. ENERGEX ASSETS AND INFRASTRUCTURE

- 6.1 One of the key challenges for ENERGEX arose because the flood events seriously damaged a significant amount of ENERGEX's electricity assets in South East Queensland.

Western Region – Withcott and Lockyer Valley

- 6.2 The worst of the damage affected the ENERGEX network in the Lockyer Valley which is largely an overhead system.

- 6.3 The most significant damage to ENERGEX assets in this region occurred in the areas of Murphy's Creek, Helidon, Grantham, Lake Clarendon, Spring Creek and Carpendale.
- 6.4 Due to the velocity of the water, river crossings and lines near watercourses disappeared under water or were washed away. Ground-mounted switchgear and transformers were also inundated.
- 6.5 The initial impact of the water surge on the afternoon of Monday 10 January 2011 affected the main feeder lines in the region outlined in the table below. This resulted in approximately 5,000 customers in this area losing power.

Zone substation impacts

- 6.6 ENERGEX's zone sub-stations provide control and voltage to the Distribution Network. Damage to a zone substation means that up to 20,000 customers who receive electricity through that zone substation will be affected.
- 6.7 Twenty-five zone substations throughout South East Queensland lost supply during the flood resulting in a peak of approximately 150 000 customers without supply.
- 6.8 The majority of substations were impacted by the loss of incoming 33kV supply rather than inundation or damage.
- 6.9 Ten zone substations (affecting approximately 50,000 customers) in the Tennyson Bulk Supply Zone were interrupted between 6:17pm and 8:50pm on Wednesday 12 January 2011 as a result of manual interruption of the Powerlink Queensland bulk supply at Rocklea.
- 6.10 Supply to eight substations, was directly attributable to flood damage to incoming supply circuits or significant damage on all outgoing circuits.
- 6.11 Although separate to the flood events, three substations (Marburg, Bethania & Karrabin) were also interrupted for short periods during the storms on either Tuesday 18 January 2011 and Wednesday 19 January 2011

Central Business District Distribution Substations

- 6.12 Two types of CBD distribution substations were affected during the flood event:
 - (a) those that supplied the immediate building itself; and
 - (b) major substations that connect a number of main feeder routes within the CBD supply network.
- 6.13 Many CBD distribution substations are located below ground level and were subject to inundation by flood water.
- 6.14 In addition, there were many transformer sites that supply individual buildings or street shops and offices in the CBD that had to be shut down due to the risk of inundation by flood water or where these sites connected to inundated substations. For the reasons explained above, ENERGEX made a decision to pre-emptively interrupt supply at those locations.
- 6.15 Other buildings experienced loss-of-supply faults on the 'customer side' of the supply transformers

Impacts on the ENERGEX Distribution Network (including Brisbane, Ipswich and the Lockyer Valley)

- 6.16 In addition to the damage done to sub-stations, other parts of the ENERGEX distribution network suffered widespread damage. Specifically:
- (a) Ninety-five poles had to be replaced, most in the western region.
 - (b) A total of 101 pad-mounted and ground distribution transformers had to be removed and replaced, with the removed units being returned to Banyo for refurbishment.
 - (c) Ninety-eight kilometres of overhead line required replacement.
 - (d) Numerous low voltage pillars and other apparatus were cleaned and returned to service.
 - (e) HV and LV switchgear of a number of pad-mounted subs required extensive repairs and replacement.
 - (f) As at 1 February 2011, 3,645 water-damaged electricity meters have been replaced with current-standard electronic units.
- 6.17 The table below contains a summary of the total items replaced due to flood damage as at 1 February 2011:

Equipment	Number
Distribution Transformers	101
Switch Fuse gear	55
Substation relays	55
Watt hour meters	3645
Poles	95
Overhead Cable	98 km

7. ENERGEX NETWORK PERFORMANCE DATA

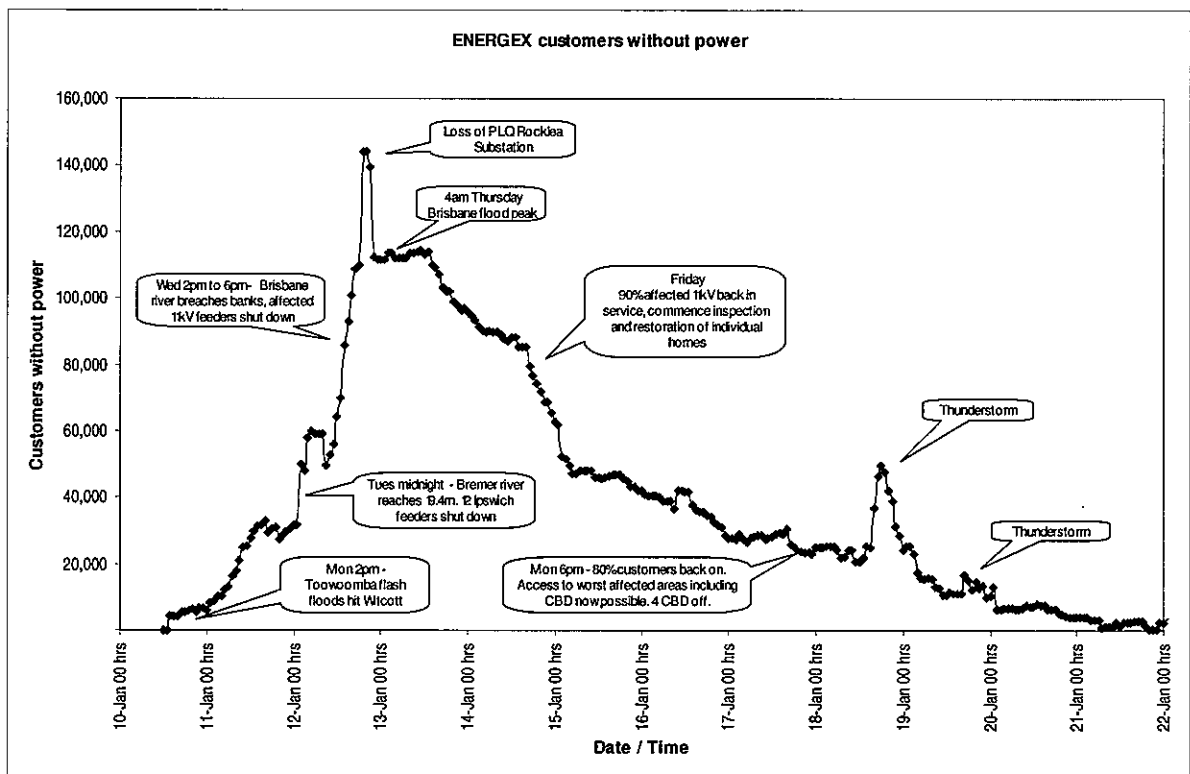
- 7.1 The flood event resulted in interruption of supply to over 300,000 customers in Ipswich and Brisbane. Supply was able to be restored to approximately 90% of the high voltage feeders (at the substations) by the end of 15 January 2011.
- 7.2 The following table gives an indication of the overall impact that the damage to ENERGEX's infrastructure had on supply.

For the period from 1:00 pm Monday 10 January 2011 to 11:00pm on Monday 17 January 2011:

Total Substation Outages	25
Total Feeder Lockouts	157
Total Numbers of Customers Who Lost Supply	Approx

	310 000
Peak Number of Customers Who Lost Supply	Approx 150,000

- 7.3 The following chart provides ENERGEX's estimate of the customers without supply throughout the flood event. There may be some minor discrepancies between the data displayed in this chart and estimates provided during the flood event itself.
- 7.4 Any differences in the data result from the fact that this flood event was unique within the ENERGEX network in terms of the widespread nature of outages and the challenges involved in reporting and updating any changes to outages in 'real time'.



8. PREPARATION FOR THE FLOOD EVENTS

- 8.1 Despite the challenges it faced, ENERGEX was well prepared for the flood events and the emergency that followed as a result of its:
- Summer Preparedness Plan;
 - Flood Risk Management Plan (produced in preparation for the 2010/11 summer);
 - Business Continuity Plans; and
 - the development of relevant work practices and instructions as the flood event evolved.
- 8.2 The early preparation and initiation of these plans and practices allowed ENERGEX to prioritise safety as well as continue on a 'business as usual basis' throughout the flood events, notwithstanding the devastation caused by the flood.

SUMMER PREPAREDNESS PLAN

- 8.3 ENERGEX undertakes detailed preparation and planning for each summer season in South East Queensland prior to 31 August each year. The preparation is recorded in its Summer Preparedness Plan in accordance with the requirements under the Electricity Industry Code pursuant to the *Electricity Act 1994* (Qld).
- 8.4 As part of this preparation ENERGEX closely examines how it plans to:
- (a) prepare its supply network for the upcoming summer to minimise outages to customers;
 - (b) manage and minimise the impact of extreme weather events on customer supply;
 - (c) identify and respond to emergencies that have the potential to impact on customer supply;
 - (d) keep customers informed of electricity supply issues during the summer season.
- 8.5 Specifically, in planning for the 2010/2011 summer season ENERGEX focussed on the following four key areas:
- (a) significantly increasing the capacity and security of the network to meet high summer energy and peak demand;
 - (b) improvements to the resilience of the network in times of severe weather;
 - (c) improvements to ENERGEX's operational response to network emergencies;
 - (d) ensuring the provision of timely and accurate communications with customers and media in relation to network emergencies.
- 8.6 In particular, the planning undertaken at items (b) to (d) above meant ENERGEX was well equipped to manage its emergency response to the 2011 flood event.
- 8.7 The planning undertaken and the outcome that had when the flood event occurred is outlined below:
- (a) ENERGEX reviewed its Corporate Emergency Management Plan (**CEMP**) and conducted simulations of the processes provided by it.

The CEMP was central to ENERGEX's management of the flood crisis and because of the summer preparedness planning the CEMP was activated quickly and effectively on 11 January 2011 (a further explanation of the activation of the CEMP is outlined below).

The simulation to test the CEMP was conducted in the early part of summer with 2 exercises held on 28 and 29 September 2010. There were also other tests conducted at regular intervals including in relation to standby roles and trials of systems.
 - (b) ENERGEX obtained access to a range of weather forecasting services to assist it in preparing for weather events.

ENERGEX received forecasting data from the Bureau of Meteorology (**BoM**). Together with the flood maps provided by the BCC in January 2011, this data assisted ENERGEX to make measured decisions on the potential impact of the flood event and prepare the necessary organisational response.

- (c) Training schedules for all emergency related activities were prepared in advance of the 2010/2011 summer season to ensure that ENERGEX personnel were instructed about safe driving and working conditions during a potential flood event.
- (d) ENERGEX ensured that the Control and Contact Centres were able to be relocated to disaster recovery sites.

ENERGEX maintains a fully operational Control Centre at Victoria Park and Contact Centre at Warry Street in Spring Hill. It ensures that there is infrastructure at the disaster recovery sites that mean alternate Control and Contact Centres can be up and running quickly.

Closure of the Newstead site subsequently became necessary during the 2011 flood event. The summer preparedness planning meant that this was able to be achieved smoothly.

- (e) Maintained its minimum capability to respond to up to 100,000 customer calls per hour via its processes in the Contact Centre.

The Contact Centre was able to manage the increased call volume during the 2011 flood event without the need to rely on additional staffing of the Contact Centre external to ENERGEX.

- (f) ENERGEX ensured it had a proactive, multi-faceted communications strategy.

This preparation was invaluable during the 2011 flood event where communicating with customers, industry stakeholders, Government and staff was essential to protect the safety of the community and minimise damage to assets and disconnect and reconnect assets.

FLOOD RISK MANAGEMENT PLANS

- 8.8 As part of the ongoing and proactive Summer Preparedness Program ENERGEX developed a Flood Risk Management Plan 2010/2011 (**the Flood Plan**) during 2010 when it became aware of the incoming La Nina weather system. The Flood Plan applied to Brisbane and Ipswich.
- 8.9 A Gympie specific Flood Plan had been in operation since 1995/96 because the Mary River in Gympie is prone to flooding.

Flood Plan

- 8.10 The Flood Plan was developed in 2010 as part of ENERGEX's Summer Preparedness Plan. During the 2011 flood event the Flood Plan assisted ENERGEX to:
 - (a) identify which assets were at risk of inundation;
 - (b) develop asset management procedures based on this risk;
 - (c) coordinate its network operations response;
 - (d) liaise effectively with other stakeholders; and
 - (e) determine how and what information needed to be provided to customers related to flood risks and public safety.
- 8.11 The Flood Plan also contains a detailed plan for ENERGEX's communication internally, with Emergency Services (including the Police, SES and local disaster coordinators) and with the public during a flood event.

- 8.12 The key objectives of ENERGEX Flood Plan are:
- (a) Safety at all times to public, employees and other emergency services employees.
 - (b) A coordinated response to an emergency.
 - (c) Speedy restoration of adequate supply to customers.
 - (d) Timely restoration of the network to normal operating conditions.
 - (e) Resumption of normal operations as quickly as possible.
- 8.13 The Flood Plan was activated on Sunday 9 January 2011. The implementation of the plan changed frequently over the following 48 hour period particularly when ENERGEX issued a Purple Alert on Tuesday 11 January 2011.
- 8.14 During the flood events the Flood Plan requires information to be readily available about 11kV Feeder switching locations. This information (together with flood maps provided by the BCC) assisted ENERGEX to make decisions about where and when to interrupt supply.
- 8.15 The Flood Plan requires ENERGEX to consider the following when contemplating disconnections:
- (a) What is the earliest stage to interrupt supply to maximise safety and plant protection yet at the same time minimising inconvenience to customers?
 - (b) Selection of the appropriate isolation points to minimise the extent of the interruptions and avoid interrupting supply to unaffected homes and businesses.
- 8.16 In preparation for the next summer season, ENERGEX intends to have the Flood Plan endorsed as part of its Summer Preparedness Plan and to have high level information about the plan publicly available to allow customers to plan their own Business Continuity Plans (**BCPs**) or Disaster Recovery Plans.

Gympie Flood Plan

- 8.17 The Gympie Flood Plan details the emergency response to be implemented when the Mary River reaches the 6 to 11 metre mark at Kidd Bridge in Gympie.
- 8.18 On 8 January 2011, the Mary River rose to flood levels which prompted ENERGEX to issue a media release on 8 January 2011 advising Gympie customers that ENERGEX may cut off power supply to affected areas in Gympie due to flooding.
- 8.19 From this point, ENERGEX enacted the Gympie Flood Plan and placed crews on standby ready to respond to a flood in Gympie.
- 8.20 Crews were able to refer to the Gympie Flood Field Book (attached to the Gympie Flood Plan) for information relating to disconnection and reconnection of premises. The Field Book was also used as a guide for crews to determine which assets needed to be disconnected depending on the height of the Mary River.
- 8.21 The Gympie Flood Plan worked well during the January floods. An internal ENERGEX review has been conducted and refinements are being made to this Plan.

BUSINESS CONTINUITY PLANS

- 8.22 ENERGEX's BCP is drafted in accordance with the guidelines for Business Continuity Management contained in Australian Standard HB292. It is comprised of the following:

- (a) Tier 1 – CEMP. This plan co-ordinates business continuity for the whole of ENERGEX. It is used for events that affect the entire organisation and drives the activation of the Tier 2 plans.
- (b) Tier 2 – Plans at the Tier 2 level are group or location based and maintain critical business functions of ENERGEX.
- (c) Tier 3 – This level of plan ensures the provision of critical resources to critical business functions identified in Tier 2 plans.

8.23 All three tiers were activated during the 2011 flood event.

Tier 1 – Corporate Emergency Management Plan

- 8.24 ENERGEX held its initial meeting regarding the emerging flood situation at 8.15am on Tuesday 11 January 2011. A decision was made to activate the CEMP and initiate a Purple Alert at this meeting.
- 8.25 As a result the CEMP team took responsibility for providing corporate level support to the management of the flood event and dealt with the strategic issues including the political impact and customer communication.
- 8.26 A Purple Alert is ENERGEX's highest level of alert under the CEMP. Under the CEMP Manual a flood can be a trigger for a Purple Alert if it is forecast to have a significant impact on the distribution network. The information ENERGEX had about the 2011 flood event meant that this was likely.
- 8.27 ENERGEX maintained a Corporate Emergency Response Log during the 2011 flood event which provided a central registry of key decision making issues which could be referred back to at any time. The Log was commenced at the first meeting at 8.15am on 11 January 2011.

Closure of Newstead

- 8.28 At a CEMP meeting at 11.15am on 11 January 2011 a decision was made to relocate the Newstead site including the Control Room to Victoria Park and the Contact Centre and Central Dispatch to Warry Street. Other critical functions were maintained through the suite of pre-existing BCPs.
- 8.29 The closure was largely due to access concerns as the waters rose in the car park at Newstead. The Newstead site remained closed until 17 January with the return of office staff. The Control Room, Contact Centre and Central Dispatch returned Newstead on 22 January 2011.

Further CEMP Meetings

- 8.30 From 11 January 2011 throughout the flood event the focus of the CEMP team was to:
 - (a) pre-emptively disconnect supply to ensure safety was a priority and limit damage to ENERGEX assets; and
 - (b) manage and plan for restoration to ensure that reconnections occurred as efficiently and as soon as possible.

DEVELOPMENT OF WORK INSTRUCTIONS

- 8.31 On the evening of Sunday 9 January 2011, when a major flood event appeared likely, the Storm room activated the Flood Plan. The next day priority was given to the development of standard procedures to deal with flood affected equipment.
- 8.32 ENERGEX's main priority during the flood was protecting the safety of its workers and the community. All ENERGEX workers were faced with unusual working conditions during the flood event. The main purpose of developing these work procedures was to ensure that ENERGEX workers could carry out the work safely and that the risk to the community posed by the combination of flood water damaged items and electricity was minimised.
- 8.33 The procedures developed included:
- (a) Work Practice WP-1133: Installation Reconnection After Natural Disaster which provided guidelines for the reconnection of installations affected by structural damage, rainwater or flood inundation.
 - (b) Work Practice WP-1134: Re-energisation of Flood Affected Distribution Equipment which provided direction for re-energising underground assets which have been inundated by flood water.
 - (c) Work Practice WP-1135: Re-instating Pole Mounted Plant.
 - (d) Network Ops Standards: Process for managing LV in the CBD following flooding which was prepared to ensure the LV network in the CBD was not energised unless it was safe to do so.
 - (e) Network Operations Emergency Work Procedure – Restoration of Electricity Supply Following Flooding which was prepared to ensure that the electricity network was safely and appropriately re-energised following the flood event.
- 8.34 These procedures were invaluable during the flood response and contributed to the efficient and safe restoration of power to customers.

9. COMMUNICATION WITH KEY STAKEHOLDERS

Corporate Emergency Management Plan

- 9.1 Once a Purple Alert was activated on 11 January 2011 under the ENERGEX BCP communication with key stakeholders was guided by the CEMP.
- 9.2 The CEMP recognises that one of the most important aspects of crisis management is communication. During an event all communications are managed by a Communications Team Leader who is assisted by:
- (a) a customer contact group and community communications;
 - (b) staff and internal communications;
 - (c) media communications;
 - (d) government communications.
- 9.3 From 11 January 2011 the Corporate Communications team operated from the same site as the Control Room at Victoria Park. The close proximity of the Corporate Communications team to the Control Centre greatly assisted in the flow of information from ENERGEX to the public and other relevant stakeholders.
- 9.4 ENERGEX was also guided by its Flood Plan in ensuring that it communicated effectively with all relevant stakeholders.

Corporate Communications Strategy

- 9.5 During the flood event ENERGEX committed to ensuring that the public was well informed about issues affecting supply of electricity to their homes and businesses and to ensure safety in relation to electricity.
- 9.6 ENERGEX's Corporate Communications team (guided by the CEMP) managed all communications during the flood event. At all times communication specialists were on-call on rotating 12 hour shifts which allowed ENERGEX to provide 24 hour media updates.
- 9.7 ENERGEX's Corporate Communications between 11 January 2011 and 25 January 2011 was comprised of:
- (a) 4,874 media mentions including in the press, television, radio and online.
 - (b) 54 media releases.
 - (c) 3 Courier Mail advertisements.
 - (d) 974 Australia Traffic Network radio spots.
 - (e) 2,331 Twitter followers and 270 Twitter messages.
 - (f) New flood information website.
 - (g) Deployment of the mobile communication centre.
 - (h) Delivery of the community flyer.

Television, Radio, Press and Online

- 9.8 ENERGEX kept its customers regularly informed of the status of the disconnection and reconnection process and provided important health and safety messages through television, radio, press and online reporting on a 24 hour basis.
- 9.9 Mr Mike Swanston was the leading ENERGEX spokesperson during the flood event. Mr Swanston is a senior employee at ENERGEX with a detailed technical knowledge of the ENERGEX network.

Media Releases

- 9.10 A central part of ENERGEX's corporate communications strategy involved regular media releases. The releases were used by all media channels to obtain accurate and timely information for the public. The media releases were also accessible by any member of the public on the ENERGEX website.
- 9.11 ENERGEX also issued regular 'ENERGEX Flood Fast Facts'. This type of media release provided a snapshot of the situation as it related to ENERGEX in short and simple language.

Social Media

- 9.12 During the flood event ENERGEX's Twitter followers increased from approximately 800 followers to approximately 2,331 individuals. ENERGEX provided 270 Twitter messages on power restoration and safety during the flood event to its Twitter followers. Some examples of the Twitter messages sent to followers is contained at **Schedule D**.

- 9.13 ENERGEX also coordinated with the Queensland Police Service media to post message on the QPS Facebook page. A copy of the Facebook message is contained at **Schedule E**.
- 9.14 The benefit of the use of social media was that it allowed for one-on-one dialogue with customers on mobile devices in real time.

Website

- 9.15 During the flood event ENERGEX developed a new flood information page on its website. This flood information page went 'live' on 17 January 2011 and it was updated on 18 January 2011 to give street by street flood information. A copy of the information page is contained at **Schedule F**.
- 9.16 The web-site provided centralised information including:
- (a) important safety information;
 - (b) information for electrical contractors;
 - (c) restoration updates as detailed at street level.
- 9.17 The ENERGEX website experienced a significant increase in usage during the flood event and was one of the most accessed websites in Australia at the time.
- 9.18 The increased traffic to the ENERGEX website caused it to fail for a short period of time during the flood events. The failure was predominantly due to an error in an embedded code. ENERGEX had a backup plan in place which was activated and operated as intended. The embedded code error has subsequently been rectified by ENERGEX's IT supplier.

Mobile Communications Facility in the Lockyer Valley

- 9.19 In July 2009 ENERGEX introduced a forward command/communications facility in response to a recognised need to develop a mobile response centre to assist in severe weather cleanups. The mobile response centre proved to be invaluable in the 2011 flood event.
- 9.20 On 12 January 2011 ENERGEX deployed the mobile response centre to the Lockyer Valley to assist in the reconnection and restoration effort. It became a 'one-stop-shop' for information in the Lockyer Valley community and provided a range of computer based data, safety advice, basic amenities, a hub for ENERGEX crews working locally and emergency mobile power generation.
- 9.21 Other emergency services were able to use the facility as an operations base which meant the mobile response centre was a gathering point for all involved.

Community Flyer

- 9.22 During the event ENERGEX issued a 'Power Restoration Update' to its customers. A copy of the flyer is annexed at **Schedule G** to this submission.

Staff

- 9.23 Multiple staff bulletins were issued during the flood event to inform:
- (a) office staff of restoration progress (including plans for return to Newstead); and
 - (b) field staff of the restoration progress and to provide alerts on safety and health risks associated with flood hazards.

9.24 ENERGEX also set up an event information intranet page that staff could access.

Contact Centre

9.25 The Contact Centre was an essential component of ENERGEX's communication strategy during the flood event.

9.26 Following the closure of the Newstead site on 11 January 2011, the Contact Centre operated from its disaster recovery location at Warry Street in accordance with its Tier 2 and Tier 3 BCPs. As part of the ENERGEX Summer Preparedness Plan 2010/2011 the Contact Centre was able to respond to up to 100,000 customer calls per hour and was fully operational from its disaster recovery site.

9.27 The ENERGEX Contact Centre is structured to allow it to answer the high volume of calls that it did during the flood. When a customer telephones the Contact Centre:

- (a) the customer is:
 - (i) recognised by the system and receives a specific outage message based on location (usually down to street level) through the interactive voice response system; or
 - (ii) not recognised by the system and is asked to key in their postcode and receives a more generic outage message (based on suburb).
- (b) if the system does not provide the information the customer is seeking, the customer can select to speak with a customer service representative;
- (c) where the options at (a) and (b) are operating at capacity the customer call is diverted to a 'Telstra Cloud'. When a call is sent to this location the customer receives a message explaining that ENERGEX is currently receiving a large number of calls, it is aware of power outages in particular areas and asks the customer to telephone back shortly;
- (d) if the Contact Centre requires additional support it can rely on Ergon Energy Contact Centre staff or other trained external staff (these arrangements are tested at least annually).

9.28 During the 2011 flood event the Contact Centre operated at a level in excess of its required capability and there was no need to divert calls to Ergon Energy or rely on external staff.

10. RECOVERY AND RESTORATION

10.1 Over 12,000 homes and businesses in South East Queensland were directly affected by the floodwaters in a physical way (i.e the premises suffered at least some inundation by water).

10.2 ENERGEX's focus on safety required that all installations affected by the flood water were inspected before re-energising the premises. To achieve this, an efficient process for inspection of a customer's premises and reconnection of supply was critical.

Process for restoration priorities

10.3 The restoration of power supply to homes and businesses was driven by a central process, as outlined in the Flood Plan. ENERGEX took the following steps to restore supply throughout its network in a consistent and logical way.

Step 1 - Open switches to isolate segments of the high voltage network that were damaged, washed away or affected by floodwaters (including ground-mounted transformers).

Step 2- Isolate the low voltage output of any transformers feeding areas suspected of supplying an area that was affected by floodwaters

Step 3 - Restore supply to unaffected segments of the high voltage network, therefore restoring supply to customers who were well clear of floodwater.

Step 4 - Commence patrols of the low voltage network, isolating any affected premises at the primary fuse and issue a defect notice (Form 3) to the occupant. Approximately 12, 000 homes received defect notices during this stage.

Step 5 - After inspection and isolation, restore supply to the low voltage sections area-by-area by closing the local distribution transformer low voltage output switch, thereby restoring supply to more unaffected premises in the local area.

Step 6 - Repair damaged plant and equipment, and re-energise when safe.

Step 7 - Following inspection and repair by a qualified person (and the submitting of a form 2), restore the primary fuse to the individual premises one-by-one.

Coordination with Master Electrician's Association

- 10.4 As set out above, if ENERGEX considered that the electrical safety at a customer's premises had been affected by water it issued that customer with a Form 3 Disconnection Notice. The effect of a Form 3 was that the customer was disconnected from the distribution network because it was not safe to re-connect supply to the premises in these circumstances.
- 10.5 To be reconnected to the network, customers were required to arrange for a qualified electrician to inspect the premises and issue a Form 2 Reconnection Notice. Once the Form 2 was issued ENERGEX could then safely reconnect the customer to the ENERGEX distribution network.
- 10.6 During the 2011 flood event ENERGEX was regularly asked by customers for information about retaining a qualified electrician. In order to assist customers, many of whom were experiencing distress, ENERGEX coordinated with the Master Electricians Association (**MEA**) the leading peak body for the electrical and communications industry in Australia to develop a plan for the restoration of electrical supply.
- 10.7 Under the plan with the MEA, ENERGEX advised customers through the media and at site level that electricians could be found in the Yellow Pages, local newspaper classifieds or by contacting the MEA.
- 10.8 When ENERGEX disconnected numerous premises in a particular area, it informed the MEA of this so that the MEA could arrange to have electricians available in the area for customers in need of services.
- 10.9 ENERGEX also reached agreement with the MEA that MEA electricians would charge a recommended fee of \$200 for a mandatory basic inspection service to customers. This fee did not cover the cost of any required additional work or subsequent safety inspections.
- 10.10 By coordinating with the MEA ENERGEX was able to assist customers with a seamless reconnection process. Other electricians who were not MEA members were able to work through the arrangements put in place by the MEA.

Field response and resource utilisation

- 10.11 Local knowledge and accountability for an area was a big advantage in prioritising restoration efforts.
- 10.12 The allocation of senior staff to local geographic areas to direct local restoration efforts and act as local liaison with other authorities also proved very effective.
- 10.13 The impact on staff home lives and personal impacts in very challenging conditions required a focussed HR response.

Deployment of ENERGEX generators in the community

- 10.14 ENERGEX provided up to 40 generators (26 from ENERGEX fleet plus 14 from local hire companies) ranging in size from 30 kVA to 1000 kVA during the flood event.
- 10.15 These proved to be extremely useful, particularly to get electricity supply back onto Fernvale township and the Rocklea markets.

ENERGEX's Response in Withcott and the Lockyer Valley

- 10.16 The extent of the devastation in the Lockyer Valley meant ENERGEX had to take a different approach to recovery and restoration which took into account the difficult conditions.
- 10.17 Up to 80 ENERGEX crews worked extended hours each day for two weeks to safely restore power to the homes and businesses in the Lockyer Valley.
- 10.18 During the restoration process, safety was ENERGEX's first priority. There were no electricity related injuries to ENERGEX staff, emergency services staff or members of the community.
- 10.19 There is no doubt that the restoration process was lengthy for some customers in this region due to the nature of the damage and access difficulties to ENERGEX assets. However, ENERGEX staff worked closely with the Lockyer Valley Regional Council, Department of Main Roads and the Local Disaster Management Group to gain access and prioritise restoration works.
- 10.20 Key aspects of the restoration process in the Lockyer Valley are outlined below:
 - (a) The ENERGEX 'Forward Command Centre' caravan was established at Postman's Ridge on 12 January 2011 to provide a base for ENERGEX crews and community information centre.

This facility was also used to provide meals for staff, the local community and other response agencies.
 - (b) ENERGEX staff patrolled whole sections of line on foot, until helicopters could be sourced to assess the damage from the air;
 - (c) With support from local farmers, ENERGEX used five large excavators to gain access to poles, wires and other ENERGEX infrastructure.
 - (d) Where possible, ENERGEX generators were deployed into critically effected areas to provide urgent access to electricity;
- 10.21 Within the Lockyer Valley, restoration works were completed and supply restored to those customers who were ready for reconnection within a week of the initiating flood event.

- 10.22 In many cases, further works were required on customers' installations to enable safe reconnection of supply.
- 10.23 With the exception of a small number of sites where ENERGEX needed to work with customers to determine their re-supply requirements, supply was restored to all homes in the Lockyer Valley including those areas most severely impacted.
- 10.24 The only outstanding ENERGEX flood related work in the region is reinstating lines where temporary solutions were put in place. ENERGEX crews are completing these tasks now.
- 10.25 ENERGEX also recently completed a post flood helicopter patrol of ENERGEX assets impacted by the floods, to identify any previously unidentified issues and to determine any ENERGEX assets at risk due to the revised location of creek banks and washouts.
- 10.26 Any work identified from this patrol has been prioritised and included in ENERGEX's works program for completion over the coming months. An ongoing effort will also be required to recover those ENERGEX assets stranded or washed away by the flood waters.
- 10.27 These outstanding works have not resulted in delays to customers being reconnected where they were able to do so.

11. OPPORTUNITIES FOR IMPROVEMENT

- 11.1 ENERGEX is taking full advantage of the opportunity to improve its processes by conducting a full review of the flood events in order to identify any improvements it can make to its current systems and processes.
- 11.2 Where the review identifies the matters affecting ENERGEX's preparation for Summer 2011/2012 these matters will be factored into ENERGEX's internal planning processes including their Network Management Plan, the Summer Preparedness Plan and the Flood Risk Management Plan.
- 11.3 ENERGEX has already identified a number of areas where there is an opportunity for improvement. Some of these opportunities relate to ENERGEX's internal processes while others relate to issues affecting the wider community.

Location of CBD electricity distribution assets

- 11.4 Approximately 25 of ENERGEX distribution substations in the CBD are positioned below the Q100 flood levels set by the BCC following the 1974 flood event (for example in the basement of high rise offices). As a result, there is a significant risk of inundation by flood waters for these assets. Accordingly this also means that if a flood occurs supply must be pre-emptively interrupted to these locations.
- 11.5 At present ENERGEX does not have a power to **require** that a substation installed in customers' premises be installed above the Q100 Flood Level. Specifically:
- (a) Under the *Electricity Regulation 2006 (Qld)* (**Electricity Regulation**)² there is a requirement that an owner provide ENERGEX with space³ to install a substation on premises provided it is reasonably necessary to meet an existing or likely demand for electricity.
 - (b) The Building Act, Building Regulations and BCA do not require electrical substations in buildings to be constructed above flood levels.

² See section 59 of the Electricity Regulation.

³ The Electricity Regulation defines 'space' as the necessary or suitable floor or foundation, walls or enclosure, ceiling and access doors in the part of the premises where the substation is to be located and installed, with the walls or enclosure, ceiling and access doors being suitably painted.

- (c) There is no power under the *Sustainable Planning Act 2009* (Qld) (**SP Act**) or the *Sustainable Planning Regulation 2009* (Qld) (**SP Reg**) for ENERGEX to compel an owner to install a substation above Q100 Flood Levels.⁴
- (d) The Brisbane City Council's CityPlan 2000 also does not contain a specific requirement that substations be placed above flood levels.

11.6 ENERGEX respectfully submits that consideration should be given to amendment of the appropriate legislation to give ENERGEX greater power to obtain suitable locations for electricity assets, in consideration of flood levels, access and other design factors.

Flood Exposure of ENERGEX assets

- 11.7 A number of ENERGEX's sub-stations were exposed to flood waters. These sub-stations are large pieces of infrastructure and obviously, there are considerable cost and logistical issues involved in re-locating these assets to areas not prone to flooding.
- 11.8 Since 1974 ENERGEX has relied upon the Q100 flood level supplied by Local Authorities to site or relocate the electrical assets in these substations and help mitigate against flood options. Despite this, some sub-stations built above the Q100 flood levels (for example Milton) were still inundated during the flood events.
- 11.9 ENERGEX is investigating the flood exposure of these current major substations and any flood-mitigation options.
- 11.10 ENERGEX is also investigating the flood exposure of underground distribution assets and considering modifying standards to encourage the installation of pad mount transformers above relevant flood level wherever possible.
- 11.11 ENERGEX understands that work is being done by the BCC and other Councils to revise the Q100 flood level following the flood events. ENERGEX intends to work with the BCC on this issue and factor this into its review of flood exposure of ENERGEX assets.

Planning and Preparation

- 11.12 The requirement that pre-emptive disconnection of power occurs means it is important that, particularly in the CBD area, building owners and operators are prepared for this possibility and have their own Business Continuity Plans in place to allow for this.
- 11.13 ENERGEX proposes to take the following steps prior to the next wet season:
 - (a) review the availability of contact data with all CBD and near CBD sites. ENERGEX's database should include both the contact details and substation/switching access point for each CBD site;
 - (b) using this database, make contact with building owners and operators in the CBD and other 'at risk' areas near the CBD to discuss exposure to floods and assist those owners and operators with the development of BCPs in relation to electricity supply;
 - (c) review the flood maps and contingency switching priorities related to various floods levels or dam release volumes to allow ENERGEX to prepare for isolation of unaffected areas in the event of another flood event in the 2011/12 wet season;
 - (d) review the emergency communication and co-ordination processes with building owners and operators for pre-emptive switching and work with the relevant

⁴ ENERGEX does have powers as a referral agency in the Development Assessment process under the SP Act however, this is limited to protecting existing substations from new developments rather than dealing with the placement of new substations.

stakeholders (including but not limited to the State Government, local councils, Police and Emergency Services) as broader communication protocols are also required.

Response and Restoration

11.14 ENERGEX's response, recovery and restoration worked well. However, ENERGEX also recognises there are aspects of its response which could be improved.

11.15 ENERGEX intends to:

- (a) examine plans for the use of flood warning information to better inform network switching arrangements and flood communications in areas other than the Brisbane CBD;
- (b) confirm the arrangements put in place during the flood events for co-operation with private electricians to effect repairs to premises as occurred during the flood events.
- (c) develop a process to more accurately track the connection status of individual premises, for timely response to customers.
- (d) feed information on the planning, priorities and targets for field staff involved in restoration activities through to the operators of the Power Outage Console, so that estimated restoration times better reflect restoration activities
- (e) review opportunities for an even more effective deployment of mobile generators by:
 - (i) identifying generator connection locations for key sites and maintaining these details in a database; and
 - (ii) updating the Flood Plan to include generator deployment (including the possibility pre-emptive distribution of generators).

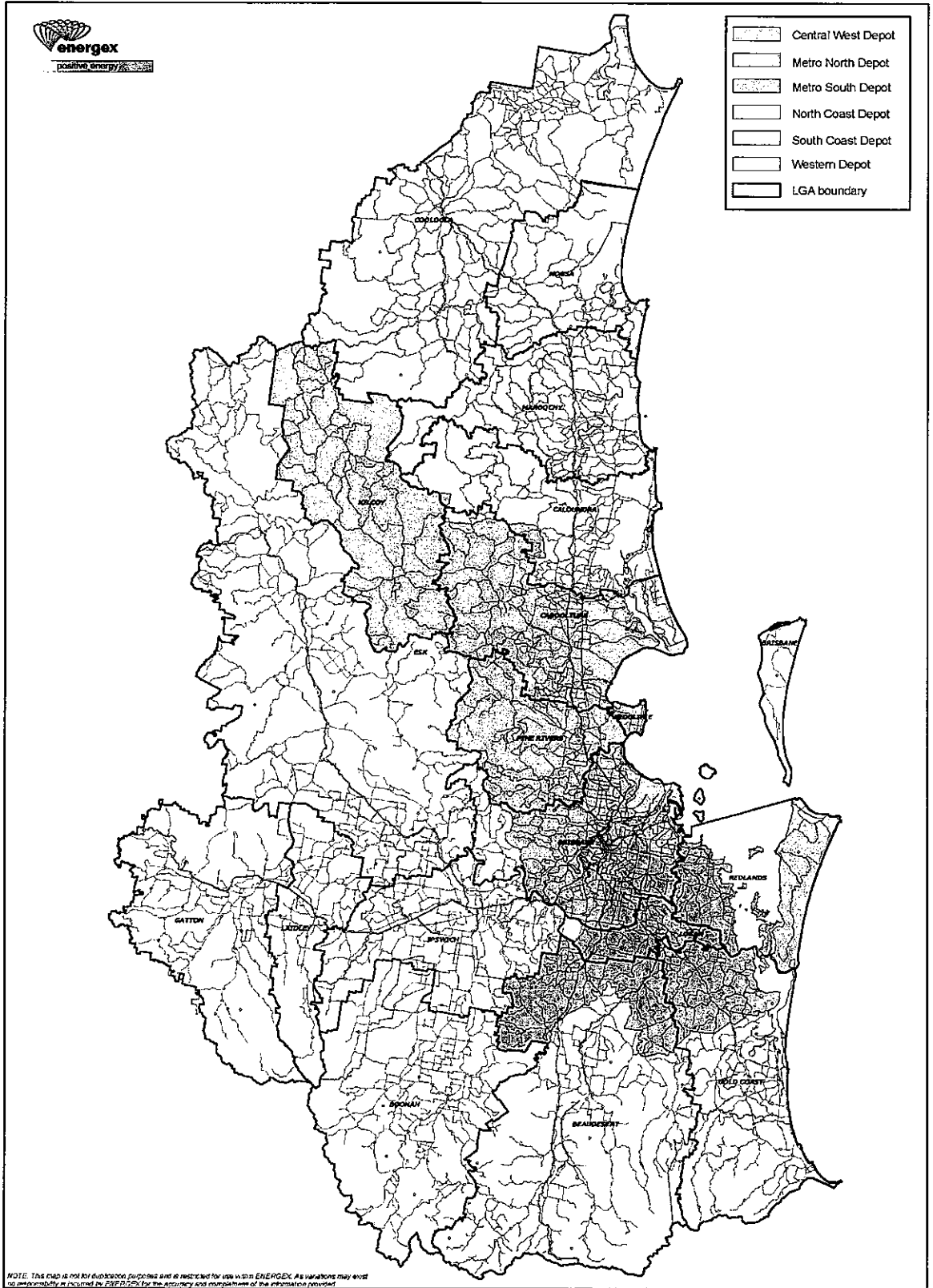
Signed:

Date:

2011

SCHEDULE A

AREA OF COVERAGE



SCHEDULE B

THE ENERGEX NETWORK

1. OVERVIEW

- 1.1 ENERGEX is responsible for the distribution portion of the network between the power station and the customer.
- 1.2 It takes supply of electricity from Powerlink Queensland at various Connection Points throughout the network and distributes this via a Sub-Transmission Network and Distribution Network to customers in South East Queensland.
- 1.3 Zone Substations and Distribution Substations then convert the voltages as necessary to minimise network losses and meet customers' voltage requirements.

2. KEY FEATURES

- 2.1 Explanations of the key features of the ENERGEX electricity network are as follows⁵:
 - (a) **Transmission Network:** This is the high voltage electricity supply network which transmits power from an electricity generator Bulk Supply Substations. The transmission network is controlled by Powerlink Queensland (**Powerlink**). ENERGEX is not responsible for this part of the network.
 - (b) **Connection Point:** This is an agreed point of supply between ENERGEX and Powerlink. A Connection Point is generally located at a Powerlink Transmission Substation and converts the electricity from 275kV to 110kV or 132kV.
 - (c) **Bulk Supply Substation:** These assets are usually jointly owned by ENERGEX and Powerlink. The equipment provides control and voltage transformation from the Transmission Network to the Sub-Transmission Network. It is also referred to as a Bulk Supply Point.
 - (d) **Sub-Transmission Network:** This is the term used to describe the electricity supply network which operates and supplies Zone Substations or customer connection points at nominal voltage of 132kV, 110kV and 33kV. There are 132kV and 110kV Feeders that supply power from a Powerlink Transmission Substation to a Bulk Supply Substation and 33kV Feeders that supply power from a Bulk Supply Substation to a Zone Substation.
 - (e) **Zone Substation:** This is an asset owned by ENERGEX which provides control and voltage transformation from the Sub-Transmission or Transmission Network to the Distribution Network.
 - (f) **Distribution Network:** This is the term used to describe ENERGEX's electricity supply network. It supplies power from the Zone Substations to Transformers or customer connection points via 11kV Feeders (or where so designated, a 33kV Feeder).

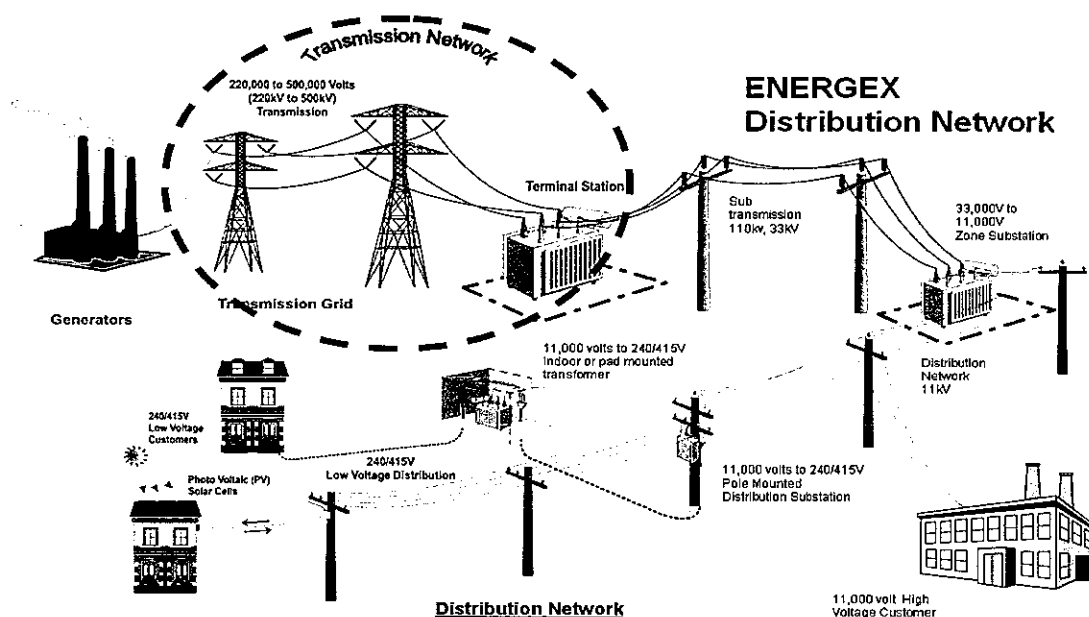
The Feeders can be overhead lines, underground cables or a combination of both. There are generally ten 11kV Feeders connected to each Zone Substation which transmit electricity to pole or pad mount Transformers.

⁵ Appendix 1, ENERGEX Network Management Plan 2010/11 – 2014/15.

There is also a network of Feeders in each suburb which supply power to Transformers. Each Feeder has a number of Transformers connected to it. One 11kV Feeder supplies power to approximately 4000 customers.

- (g) **Distribution Substation/Transformer:** This is an ENERGEX asset that provides control and voltage transformation from the Distribution Network to the Low Voltage (415/240 V) Network. Generally, a Transformer will supply 100 to 200 customers with electricity.
- (h) **Low Voltage Network:** Customers are supplied with power to a primary fuse via low voltage service on the Low Voltage Network with the closest point of interruption being the Primary Fuse, which is generally mounted at the property boundary.

2.2 The diagram below demonstrates how the elements of the ENERGEX electricity network deliver supply to the customer.



SPECIFIC ISSUES REGARDING THE OPERATION OF THE NETWORK IN THE FLOOD EVENT

Feeders

- 2.3 The feeders in the ENERGEX network can be overhead lines, underground cables or a combination of both. Generally supplying between 200 and 1000 homes in urban areas, or two or three CBD buildings, these feeders form the backbone of the ENERGEX supply network, and include automatic switches that detect a fault on the line. When a Feeder has a fault, it is designed to automatically disconnect the line from the power.
- 2.4 In a flood event, for example, if ENERGEX has not already pre-emptively disconnected a Feeder, disconnection should occur automatically when the flood waters touch energised equipment. However, it is still safer to avoid the situation where the flood waters reach the live asset by switching it off first, if this can be achieved. This is not only safer but it also improves the ability to recover the equipment and quickly restore supply afterwards.

- 2.5 Once a Feeder is disconnected from the network, there will be customers who are remote from the flood waters but still lose power. This occurs because those customers receive power from a Transformer connected to the Feeder which has been affected by water. For example, in the CBD a number of Transformers that were isolated from the network were not directly affected by flood water, and the interruption resulted from the fact that the remote feed-in ends were affected by water.
- 2.6 ENERGEX will inspect the affected Feeder, then attempt to open a switch along the line disconnecting the affected section. The healthy part of the feeder is then re-energised, restoring power to homes in unaffected areas.
- 2.7 Often, this isolation is not possible as either the isolation points are inaccessible due to floodwaters, or the 'front end' of the line is affected, meaning supply cannot be restored to homes further down the line despite the fact they are clear of floodwater.

Transformers

- 2.8 During a flood event it is common for a number of houses connected to a Transformer to be inundated with water. In this situation ENERGEX will disconnect the power to the Transformer. All customers connected to that Transformer will lose power even though only one or two of the customers have been affected by flood waters.
- 2.9 This is rectified once the flood waters subside and ENERGEX inspects the damage. If a premises went underwater, the primary fuse for the premises is removed, isolating power to the individual premises. Once all premises connected to the Transformer have been inspected, ENERGEX will reconnect the Transformer which supplies power to the houses which were not underwater and did not have their fuse pulled.
- 2.10 ENERGEX then advises the customers still without power of the need to get their premises inspected by a qualified electrician. Once this is done, the electrician advises ENERGEX and the primary fuse is replaced, restoring power to the premises

SCHEDULE C

CHRONOLOGY DURING FLOOD EVENTS

Note: Times and figures are approximate only

Tuesday 4 January 2011
ENERGEX sends electrical connection officers to regional Queensland to assist Ergon Energy in the flood recovery effort.
Saturday 8 January 2011
BoM issues a flood warning for the Mary River in Gympie.
ENERGEX Media Release: For safety reasons, once the Mary River in Gympie reaches 14.5m ENERGEX may need to cut power supply to affected areas. ENERGEX asks customers that if water does threaten homes to turn off power supplies to major appliances.
ENERGEX enacts its Gympie Flood Plan and places crews on standby ready to respond to a flood.
Sunday 9 January 2011
ENERGEX Alert Status for the Gympie region continues. Numerous power outages occur in the region due to severe weather and flooding.
5.30pm: ENERGEX representatives in the Network Operations Group and Network Performance Group gather in the Storm Room to discuss flood preparations. Key input for discussions are flood maps received from the BCC.
8.30pm: Flood Plan (and supporting documentation) distributed for activation.
Monday 10 January 2011
3.25am: Email alert received from SEQ Water explaining that releases from Wivenhoe were expected to continue until 16.01.2011.
6.00am: Advice received from BCC that there will be a possible flow rate of 4,000 m ³ /s. ENERGEX considers its flood management plans on this basis.
8.30am: ENERGEX Media Release <ul style="list-style-type: none">• ENERGEX crews are working to restore power to around 3,200 homes and businesses affected by heavy rain in SEQ.• 9,000 customers were restored to power overnight.• Most affected areas are around Gympie, Mary Valley, Sunshine Coast Hinterland and Caboolture where flooding and heavy rain are preventing crews from accessing network faults.• ENERGEX crews working in adverse conditions to reconnect power as quickly and safely as possible.• Reminds customers to stay safe around electricity
1.30pm: Flash Flooding Event - significant loss of power and damage to assets in Murphy's Creek, Withcott and Lockyer Valley regions. Approximately 5,000 customers without power. BoM advice to ENERGEX - severe flood risks in the area. ENERGEX withdraws field patrol staff

however some become isolated due to flooded roads. Flash flooding occurs. ENERGEX assets are washed away or severely damaged.
8.30pm: ENERGEX Media Release <ul style="list-style-type: none"> • ENERGEX crews will work through the night to restore power to homes and businesses. • Heavy rainfall in some areas still preventing crews from accessing network faults. • More than 5,600 customers remain without power in the Lockyer Valley region. Most of the areas will not be restored to power until Tuesday due to the extreme flood levels, washed out roads and damage to local infrastructure. • Reminds customers to stay safe around electricity
Tuesday 11 January 2011
Flood predictions for the Brisbane River continue to escalate. The final warnings are for major flood levels to exceed the 5.5 metre level recorded during the 1974 flood. Based on the ENERGEX flood plan a significant number of substations and parts of the network will be inundated in Brisbane and Ipswich. Plans are prepared for disconnection of supply on this basis.
2.07am: Email from BCC providing flood event Situation Report for 0200hours. BCC advise possible flow rate of 4,600m ³ /s and worst case of 5,000m ³ /s.
5.30am: BCC revise the flow rate upwards to 6,400 m ³ /s.
6.43am: Email from BCC providing flood event Situation Report for 0600hours.
8.00am: ENERGEX Media Release <ul style="list-style-type: none"> • ENERGEX crews working to restore power to thousands of SEQ customers. • Power has been restored to around 12,000 customers since yesterday afternoon. • 11,000 customers remain without power. • Reminds customers to stay safe around electricity.
8.15am: ENERGEX holds its first CEMP meeting. Decision to activate CEMP and Purple Alert.
9.00am: Further significant interruption in Brisbane Valley below Wivenhoe Dam as water rises due to dam releases. Supply interruption to many areas between Esk and Ipswich as Feeders trip or are manually tripped. Some Feeders in Caboolture area also isolated on reports of rising water in Dayboro and Woodford areas.
11.15am: ENERGEX CEMP Meeting. Decision made to evacuate Newstead Office. Control Room to evacuate to Victoria Park. Contact Centre to evacuate to Warry Street. Other business functions suspended. Critical functions maintained through existing BCPs.
12.35pm: ENERGEX's Newstead Site Evacuated.
2.00pm: ENERGEX commenced interruption of specific low voltage areas identified as being at risk of early flooding, including low-lying areas of Darra, Fairfield and Oxley.
3.15pm: ENERGEX CEMP Meeting.
4.00pm: ENERGEX Media Release 'Flood Fast Facts' <ul style="list-style-type: none"> • 18,945 customers without power. • Worst affected areas: Brisbane Valley, Lockyer Valley, Gympie, Mary Valley and Brisbane's

<p>inner southern suburbs.</p> <ul style="list-style-type: none"> • Access issues hampering recovery. • Asks people to have a qualified electrician inspect homes and electrical appliances that may have been water damaged.
<p>4.33pm: Email from BCC providing flood event Situation Report for 1530hours. Outlines that advice has been received from BoM that based on the likely Wivenhoe release strategy of 6400m³/s at 8.00pm tonight, the predicted flood peak is between 5m and 5.5m. The timing of the predicted peak is 3.00am Thursday 13 January 2011. Event will be similar to 1974 flood.</p>
<p>5.00pm: ENERGEX Media Release</p> <ul style="list-style-type: none"> • ENERGEX crews to start switching off electricity to many parts of CBD from 7am on 12.01.2011. • Other areas in Brisbane and Ipswich are also being closely monitored to determine whether electricity needs to be switched off. • Outages could impact possibly 100,000 customers with restoration times dependent on the rate that floodwaters recede and the amount of damage caused to electrical equipment. • As at 5pm there were 22,000 customers without supply. • Safety is the priority.
<p>7.43pm: Email alert from SEQ Water advising that the dam operators had increased release rates. Explained flood levels along the mid Brisbane River can be expected to be significantly higher than the 1974 flood.</p>
<p>8.00pm: A controlled interruption of 11,000 volt Feeders in low-lying areas of Ipswich commenced based on expectations that the Bremer River would soon peak. Approximately 36,000 customers without power supply in SEQ.</p>
<p>9.23pm: Archerfield Substation disconnected from network.</p>
<p>9.59pm: ENERGEX cuts power to Basin Pocket, Riverlink and parts of Ipswich CBD.</p>
<p>11.00pm: ENERGEX Urgent Media Release (x 2)</p> <ul style="list-style-type: none"> • Power to be cut to some parts of Ipswich starting at 11pm to protect life and property. • Due to scale of de-energisation, customers will not receive personal notification.
<p>11.03pm: Email received from BCC providing flood event Situation Report for Tuesday 2200hours. Advice is that there is a possible flow rate of 10,500m³/s. BCC is now performing all flood preparation estimates based on a flow rate of 12,000m³/s. All electrical assets and supply areas at risk up to Q50 level are identified.</p>
<p>After 11.00pm: ENERGEX Media Release</p> <ul style="list-style-type: none"> • ENERGEX to switch off electricity to low lying areas of Brisbane from 8.30am on 12.01.2011. • Outages to could impact 100,000 customers. • Just after 11pm on ENERGEX commences the de-energisation of parts of the Ipswich CBD.
<p>Wednesday 12 January 2011</p>
<p>7.00am: ENERGEX CEMP Meeting.</p>

8.00am: Some restoration and inspection of damage in Withcott and Lockyer Valley areas attempted with little success due to access difficulties. Access by helicopters limited due to low cloud. Some patrolling possible.
8.00am onwards: Progressive interruption of feeders in Brisbane and Ipswich consistent with ENERGEX Flood Plan.
Pre 8.30am: ENERGEX Urgent Media Release <ul style="list-style-type: none"> • Power will be switched off to some low lying areas of Brisbane from 8.30am today to protect life and property. • Due to scale of de-energisation, customers will not receive personal notification. • In total there are currently 50,000 homes and businesses in SEQ without power.
9.30am: ENERGEX CEMP Meeting.
10.00am: Supply shedding of the Jindalee substation commences at 10am. The entire substation shed at the 33kV level 90 minutes later.
12.00 noon: ENERGEX disconnects CBD commercial substations. Removal of key equipment occurs.
12.38pm: ENERGEX Bulletin Board message to staff advising of work arrangements for 13.01.2011.
12.43pm: Powerlink Queensland Bundamba substation disconnected.
1.35pm: Oxley substation disconnected.
Approx 3.00pm: ENERGEX Urgent Media Release <ul style="list-style-type: none"> • ENERGEX is continuing to switch off power in SEQ as areas become inundated by water. • Media release sets out a list of suburbs that are affected by power interruptions at 3pm.
3.30pm: BCC advise peak forecast flow rate of 9,500m ³ /s for Thursday. Local Disaster Management Group recommends all flood preparation continue to proceed on assumption of 12,000 m ³ /s. ENERGEX complies with recommendation.
4.00pm: ENERGEX CEMP Meeting.
4.16pm: Powerlink Queensland Rocklea 275kV substation de-energised. This interrupts supply to 52,000 customers in the southern suburbs.
Late afternoon: ENERGEX Media Release <ul style="list-style-type: none"> • Recovery and rebuild operation in full swing as flood waters begin to recede. • Where possible ENERGEX is working to restore power to homes and businesses that have not been affected by floodwaters. • More than 400 ENERGEX crews mobilised. • Currently 120,000 homes and businesses are without power. • In last three days crews have restored power to more than 140,000 customers. • ENERGEX has commenced switching electricity off to some buildings in CBD. • ENERGEX is working closely with the BCC, SES and QPS to coordinate evacuations. • Power interruptions are necessary as a safety precaution.

7.00pm: ENERGEX CEMP Meeting.
ENERGEX Media Release - Use stairs not lifts in buildings to avoid being stuck due to power outages.
<p>ENERGEX Media Release</p> <ul style="list-style-type: none"> • All property owners whose premises have been inundated by floodwaters must ensure the premises is inspected by a licensed electrician before using or reconnecting to electricity. • Electricians can be found in the Yellow Pages, local newspaper classifieds or by contacting the Master Electricians Association. • More than 100,000 homes and businesses currently cut from power network.
<p>ENERGEX Urgent Media Release</p> <ul style="list-style-type: none"> • People using boats to get around floodwaters must be mindful of overhead powerlines. • Treat all powerlines as live and stay clear.
Restoration activities begin in line with ENERGEX standard procedures with advice from the Local and State Disaster Management Groups.
Thursday 13 January 2011
<p>6.24am: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> • More than 100,000 homes remain without electricity. • Explains supply needed to be interrupted to 120,000 customers for safety reasons. • Power will be restored to customers unaffected by water today. • Parts of the electrical network are underground in the CBD. • ENERGEX has plenty of crews and is working closely with the BCC and disaster planning agencies.
7.00am: ENERGEX CEMP Meeting.
8.00am: Approximately 118,000 customers without supply. Limited restoration occurring in lesser affected areas.
9.33am: Mike Swanston (ENERGEX) - Urges people to be careful of problems with electricity when they return to their homes.
10.00am: ENERGEX CEMP Meeting.
<p>10.08am: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> • Up to 120,000 homes without power in Brisbane and Ipswich. • Some inundated homes have solar panels meaning they could still have power. Warns residents in homes with solar panels to be cautious as they might still be live. • ENERGEX has been in contact with the Solar Energy Association and Clean Energy Council about inspecting solar powered homes. • ENERGEX deploys more than 400 crews and restores power to areas unaffected by water.
<p>12.14pm: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> • Up to 116,000 homes without power. • Residents warned not to return too soon as damaged electrical cables are a serious risk.

<ul style="list-style-type: none"> ENERGEX and its customers are facing a challenging time.
<p>1.13pm: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> About 120,000 homes and businesses are without power. Most homes should be reconnected by afternoon of 13.01.2011. CBD will remain disconnected from the network as a lot of equipment and substations are underwater. Generators will be used to provide power to the CBD in coming weeks. Warns of risk of live solar panel wiring. Over 400 crews are doing safety patrols in flood affected areas.
<p>1.15pm: ENERGEX CEMP Meeting.</p>
<p>4.15pm: ENERGEX CEMP Meeting.</p>
<p>8.00pm: ENERGEX Media Release 'Flood Fast Facts'</p> <ul style="list-style-type: none"> 77,500 current outages. 160,000 customers restored since Monday. Access issues still hampering restoration.
<p>ENERGEX Media Release</p> <ul style="list-style-type: none"> ENERGEX's recovery and rebuild operation in full swing. Crews are able to gain access to infrastructure due to better weather and lower flood waters. 105,000 homes and businesses without power. In the last three days crews have restored power to more than 140,000 customers. Outages include 66,000 in the Brisbane area, 30,000 in the Ipswich area, 8,000 in the Lockyer and Brisbane Valley and 700 customers in Gympie and Mary Valley. Warns of personal safety risks.
<p>Planning begins to -</p> <ul style="list-style-type: none"> Deploy ENERGEX mobile caravan to Lockyer Valley. Develop co-ordination with Master Electricians Association regarding inspection and restoration of homes. Ensure a safety focus on homes with solar power.
<p>Friday 14 January 2011</p>
<p>6.00am: Brisbane River drops to a moderate flood level. Most ENERGEX assets are now accessible for assessment, repairs or operation. CBD still impacted and has water in basements.</p>
<p>7.09am: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> 60,000 people have had power restored. 60,000 remain without power. ENERGEX is targeting 20,000 homes in higher areas today. It will take days or weeks to rebuild infrastructure in the Lockyer and Brisbane Valleys. Paddington, East Brisbane and Highgate Hill will be able to get power back morning of

14.01.2011.
<ul style="list-style-type: none"> • ENERGEX to start issuing area bulletins to provide indication of restoration status. • ENERGEX will only reconnect homes once safety certified by a qualified electrician.
7.15am: ENERGEX CEMP Meeting.
11.09am: Mike Swanston (ENERGEX) - Much of the area ENERGEX is trying to restore power to is either damaged by water or surrounded by water. Warns solar panels may still be live.
1.00pm: ENERGEX CEMP Meeting.
4.15pm: ENERGEX CEMP Meeting.
5.00pm: ENERGEX Media Release 5.00pm 'Flood Fast Facts'
<ul style="list-style-type: none"> • 216,000 homes and businesses restored since 10.01.2011. • 46,000 current outages.
7.30pm: ENERGEX Media Release 'Flood Fast Facts'
<ul style="list-style-type: none"> • 222,600 homes and businesses restored since 10.01.2011. • 36,109 current outages.
ENERGEX Media Release - ENERGEX requires representative of low rise CBD buildings at premises to conduct the onsite work involved in reconnecting power.
Saturday 15 January 2011
3.45am: ENERGEX Media Release
<ul style="list-style-type: none"> • Power restored to 18,000 homes and businesses in last 12 hours. • Nearly 230,000 restorations since Monday. • 28,750 current outages.
7.30am: ENERGEX CEMP Meeting.
9.01am: Mike Swanston (ENERGEX) - ENERGEX crews working 12 hour rotating shifts. Each house to be checked individually.
10.00am: ENERGEX issues further warnings about solar panels.
1.15pm: ENERGEX CEMP Meeting.
4.15pm: ENERGEX CEMP Meeting.
ENERGEX Media Release
<ul style="list-style-type: none"> • ENERGEX is working with private electrical contractors to fast track the reconnection process. • Swanston explains: 'We are working with Master Electricians who are assigning electricians to those towns and suburbs where flood waters are receding. But residents can engage a licensed electrician of their choice if they wish.' • Master Electricians Association has set a recommended price of \$200 to provide the mandatory basic inspection service.
ENERGEX Media Release issued setting out concentrated areas that ENERGEX is working on.
ENERGEX Media Release: ENERGEX crews are having difficulty reaching flood affected areas throughout Brisbane and Ipswich due to congestion on the roads.
ENERGEX Media Release: ENERGEX urges people to be mindful of electrical hazards when

washing out properties.
ENERGEX advises that although power grid may be restored in particular areas, individual properties may still be without power until safety inspections can be done. Worst affected areas: Brisbane North (7,583), Brisbane South (15,182), Brisbane Valley (3,968), Brisbane West (12,636), Gympie and Mary Valley (645), Ipswich and surrounds (11,394), Lockyer Valley (2,545).
Sunday 16 January 2011
5.00am: ENERGEX Media Release <ul style="list-style-type: none"> • Crews have restored power to more than 240,000 homes since Monday. • Safety is the key focus. • ENERGEX is working with the Master Electricians to fast-track the reconnection process. Customers do not have to use the services of the Master Electricians.
7.15am: ENERGEX CEMP Meeting.
7.39am: Mike Swanston (ENERGEX) <ul style="list-style-type: none"> • Further 6,000 homes had power reconnected last night. • ENERGEX endeavouring to reconnect power in suburbs like New Farm and Kangaroo Point but some transformers have received flood damage. • Backbone of power network is restored even in badly affected areas like Goodna, Graceville and areas of Ipswich. • ENERGEX trucks are being held up by traffic on roads. • 500 ENERGEX staff are working to reduce the number of homes without power from 20,000 to 12,000. • Four major buildings in the CBD remain without power.
8.15am: ENERGEX Media Release answering the top customer questions about the restoration process issued.
8.20am: Mike Swanston (ENERGEX) <ul style="list-style-type: none"> • 20,000 homes still without power. Generators are running some towns as ENERGEX rebuilds the network. Various factors slowing down reconnection effort including mud. • Interstate resources continue to assist – EnergyAustralia, Country Energy and Integral Energy.
8.30am: ENERGEX Media Release - People are urged to keep rubbish and debris away from ENERGEX's electrical equipment while cleaning premises.
10.15am: ENERGEX CEMP Meeting.
12.30pm: ENERGEX Media Release - Safety must remain the number one priority of ENERGEX and residents in SEQ in the restoration process. ENERGEX provides guidance for how to make safety a priority.
1.15pm: ENERGEX CEMP Meeting.
1.30pm: ENERGEX Media Release 'Flood Fast Facts' <ul style="list-style-type: none"> • 26,037 customers without power. • Restoration in CBD progressing.

3.00pm: ENERGEX Media Release - Safety must remain the number one priority of ENERGEX and residents in SEQ in the restoration process. Emphasises safety in the cleanup.
4.15pm: ENERGEX CEMP Meeting.
7.30pm: ENERGEX Media Release <ul style="list-style-type: none"> • ENERGEX has restored power to 4,000 homes today. • Six CBD buildings remain without power.
8.15pm: ENERGEX Media Release - Five CBD buildings remain without power.
ENERGEX Media Release <ul style="list-style-type: none"> • 9,000 customers reconnected to power yesterday. • Approximately 20,000 homes and businesses still without power.
ENERGEX website/server busy at various times during 16.01.2011.
Monday 17 January 2011
ENERGEX Newstead Site back in operation.
Majority of CBD workers return to work.
5.30am: ENERGEX Media Release <ul style="list-style-type: none"> • More than 100 staff from NSW electricity suppliers have arrived to back up ENERGEX crews. • 30 additional private contractor crews also supporting ENERGEX. • 17,896 customers remain without supply. These are mainly those with water that has risen above floorboards and have suffered major damage.
6.07am: Mike Swanston (ENERGEX) - ENERGEX's focus is trying to get homes back online. ENERGEX has supplied a generator to get the Rocklea markets running.
7.15am: ENERGEX CEMP Meeting.
10.15am: ENERGEX CEMP Meeting.
10.36am: Mike Swanston (ENERGEX) <ul style="list-style-type: none"> • ENERGEX restored power to approximately 6,000 homes overnight. • Power should be restored to many areas today including in Oxley, Sumner, Brookfield and Milton. • Explains ENERGEX's process in disconnecting and reconnecting homes. • ENERGEX is having difficulty reconnecting power to some lower lying areas. • ENERGEX still needs to rebuild networks in some areas. • Explains some homes may still have electricity although others in the same region do not because they have solar power.
11.30am: Mike Swanston (ENERGEX) - Around 17,000 homes and five CBD office buildings are still without power. Two of the CBD buildings are so badly damaged that they will not be reconnected until Thursday.
1.00pm: ENERGEX Media Release - ENERGEX warning victims of the floods to be wary of scammers posing as ENERGEX workers and licensed electrical contractors.
1.15pm: ENERGEX CEMP Meeting.

3.30pm:ENERGEX Media Release - ENERGEX asks customers to call its hotline if their property has not been flood-affected and has not been restored to power.
3.07pm: ENERGEX says most of Brisbane's power grid should be switched back on by late this afternoon.
4.00pm: ENERGEX CEMP Meeting.
7.00pm: ENERGEX Media Release <ul style="list-style-type: none"> • ENERGEX to connect power to 3,500 customers overnight. • 19,000 customers without power. • 10,000 of those customers will be unable to be connected for several weeks.
Tuesday 18 January 2011
12.00am: ENERGEX Media Release <ul style="list-style-type: none"> • 4,000 restored to power overnight. • ENERGEX has identified more than 5,000 properties which have now been inspected and can expect restoration by Thursday. • 15,000 customers without power. Approximately 10,000 cannot be connected for several weeks and are uninhabitable.
12.15pm: ENERGEX Media Release - ENERGEX is continuing to restore power with the help of interstate companies.
4.00pm: ENERGEX CEMP Meeting.
6.00pm: ENERGEX Media Release - Approximate flood restoration times released on ENERGEX website.
ENERGEX Spokesperson (Nathan Hatch) - 17,935 customers remain without power in SEQ. 13,627 of those are in Brisbane. ENERGEX estimates that there could be 10,000 to 12,000 homes and businesses so severely damaged that it might be some time prior to reconnection.
Storm occurs late on 18.01.11.
Wednesday 19 January 2011
5.00am: ENERGEX Media Release <ul style="list-style-type: none"> • Currently 11,500 customers without power. 10,500 caused by the flood and 1,000 caused by storm. • Storm caused 24,000 power interruptions. ENERGEX responded quickly and restored power to 19,000 customers by 9.45pm on 18.01.2011.
7.15am: ENERGEX CEMP Meeting.
7.23am: Mike Swanston (ENERGEX) <ul style="list-style-type: none"> • Storm has put back flood recovery work. • ENERGEX got power back to 22,000 homes by midnight. • ENERGEX website is up today with flood and storm updates. • Further 3,000 homes that went underwater have been tested and reconnected. • Generators are operating in Lockyer Valley where ENERGEX is trying to restore power.

<ul style="list-style-type: none"> • Less than 10,000 homes are without power from the flood. • In some Brisbane suburbs it is still too dangerous to restore power due to damage to homes. • Difficult to forecast when each home will be reconnected.
<p>8.30am: ENERGEX Media Release</p> <ul style="list-style-type: none"> • ENERGEX urges people with water damaged properties and electrical appliances to have them inspected by a qualified electrician. • There have been several electrical fires in homes reported due to people switching on electrical appliances damaged by the water.
<p>12.00pm: ENERGEX CEMP Meeting.</p>
<p>3.00pm: ENERGEX Media Release - BoM forecasting storm – strong winds, rain and flooding are possible. ENERGEX (with the assistance of interstate crews) has restored power to around 250,000 homes over the past week.</p>
<p>4.00pm: ENERGEX CEMP Meeting.</p>
<p>5.15pm: ENERGEX Media Release - BoM has forecast severe weather for SEQ this afternoon and ENERGEX is urging customers to look around their properties and tidy up any loose items. Explains that severe weather conditions can cause power interruptions and that customers should have a torch with fresh batteries and a radio handy.</p>
<p>ENERGEX Media Release: ENERGEX is asking customers to report any electrical tingles felt in or outside the home.</p>
<p>Storm occurs.</p>
<p>Thursday 20 January 2011</p>
<p>5.00am: ENERGEX Media Release</p> <ul style="list-style-type: none"> • Currently around 3,700 customers without power – 3,300 caused by the flood and 400 caused by the storm. • The storm yesterday (19.01.2011) resulted in 30,000 power interruptions.
<p>8.00am: ENERGEX CEMP Meeting.</p>
<p>12.00pm: ENERGEX Media Release - ENERGEX is asking customers to beware of electrical dangers outside the home.</p>
<p>4.30pm: ENERGEX CEMP Meeting.</p>
<p>Friday 21 January 2011</p>
<p>7.35am: Mike Swanston (ENERGEX)</p> <ul style="list-style-type: none"> • CBD power grid has been restored. • Still work to be done at the Stamford Hotel. • Company has been on purple alert (highest alert) for the past fortnight.
<p>ENERGEX Media Release - Restoration continues as ENERGEX crews reconnect the remaining 1,000 inhabitable homes to power.</p>
<p>9.00am: ENERGEX CEMP Meeting. CEMP Event is formally closed and residual actions to be completed as 'business-as-usual'.</p>

Tuesday 25 January 2011

ENERGEX warning – bogus tradespeople posing as ENERGEX workers and licensed electrical contractors.

SCHEDULE D



ENERGEX ENERGEX Limited

@

@trishjb sorry Tarragindi is one of those suburbs that won't be able to come back on yet. no restoration time sorry

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>>



ENERGEX ENERGEX Limited

@

@balanceshift sorry Tarragindi is one of those suburbs that won't be able to come back on yet. no restoration time sorry

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4 of 9 subs impacted by Powerlink Sub outage r back. Remaining Rocklea, Salisb, Moorooka, Annerley, HolPark r unable I'm sorry

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update on Tennyson Sub outage: Sherwd, Indooro, Taringa, StLucia subs are back on. Unable to restore any further at this stage.

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@

@Jeebs if pwr is back on it's most likely because it was safe to do so. if that situation changes pwr situation might change, hard to say

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@

@jkington power is getting progressively restored. if ur outage is part of the Powerlink Sub outage it shouldn't be too far away

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@

@[mixamus](#) great to hear. hope you're all safe

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@

@[mickykitsune](#) we're hoping to progressively get the pwr back over next hour

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SEQ ur patience is appreciated. It is impossible to get pwr back on until water recedes. At this stage flood levels are still rising.

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Power out to many areas which may not be low-lying areas but are fed by subs that are in low-lying areas. Thanks for ur patience SEQ

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ENERGEX thanks SEQ residents for their patience. For latest outage updates <http://bit.ly/hR1g9i> [#qldfloods](#) [#thebigwet](#)

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>>



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ENERGEX monitoring Brisbane CBD as flood waters continue to rise. <http://bit.ly/18Cmib> [#qldfloods](#) [#thebigwet](#)

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Full website up and running. Check for regular updates <http://bit.ly/18Cmib>

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ENERGEX ENERGEX Limited

9453 customers without power in Brisbane West region. Check website for updates

<http://bit.ly/8oW3IT>

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>>



ENERGEX ENERGEX Limited

686 customers without power in Brisbane Sth region. Check website for updates

<http://bit.ly/8oW3IT>

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>>



ENERGEX ENERGEX Limited

1423 customers without power in Brisbane Nth region. Check website for updates

<http://bit.ly/8oW3IT>

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ENERGEX ENERGEX Limited

@

@skulzy87 only Brisbane CBD will be affected at this stage. no other suburbs listed yet. Ipswich had some power cut tonight

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ENERGEX ENERGEX Limited

516 customers without power in Brisbane Nth region. Check website for updates

<http://bit.ly/8oW3IT>

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SCHEDULE E



Queensland Police Service's Notes

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Write

Energex is urging people to be mindful of electrical hazards when washing out properties. #thebigwet #qldfloods

by Queensland Police Service on Saturday, January 15, 2011 at 10:37am

Wiring behind walls, power switches and appliances still plugged into the wall may still be live presents an obvious risk of electrocution.

To minimise electrical risks while cleaning homes and businesses people should switch off the switch in the meterbox while wearing dry gloves. If they don't know how to do this call a lic electrician or Master Electricians for advice.

Do not hose or wet inside or around the building's meterbox or switchboard.

Similarly, once finished cleaning allow the premise to dry completely before switching it back it means staying with friends or family for the night.

Any electrical appliances that were wet during the floods should be either checked by a licen contractor or photographed for insurance reasons and discarded.

Share

20 people like this.



Are you being strict on electricians having to have contractors to test houses.. as there is heaps of trademen waiting but dont have contractors to sign off houses!! January 15 at 10:39am · 2 people



Master Electricians Australia are coordinating the effort in conjunction with the government to restore power to flood affected homes. Your electricity provider (Energex/Ergon) can only legally reconnect the power if an electrical contractor has performed an electrical safety test. Master Electricians Australia has a hotline available for those that need to find an electrician - 1300 889 198. January 15 at 11:06am



Yeah its gone everywhere dude:(January 15 at 11:12am



I have an electrician but no contractors, what can he do?? January 15 at 11:16am



Got this from Energex web site "Each premise which has been partially or fully inundated by water needs to be certified by a licensed electrician (call Master Electricians 1300 889 198)." hope it helps January 15 at 11:39am



But does it still need to be checked, if it was partially covered, but power stayed on???? That happened here. January 15 at 4:05pm

Facebook © 2011 · English (US)

Chat (Offline)

SCHEDULE F



flood safety

Flooding following storms can have major impacts on the electricity network and your home. While it is not always easy to be prepared for flooding, here are some important tips to stay safe.

flood planning

Contact your local council to find out if you are in a flood-prone location. If you are in a flood-prone location:

- consider relocating your switchboard and any wiring in your home that may currently be below previous flood levels
- discuss and agree on an evacuation plan
- identify possessions, equipment and fittings that are not located above possible flood levels and move if practical
- familiarise yourself with flood warning classifications and where to access information during a flood
- keep a list of emergency phone numbers on display, also store these numbers in all mobile phones.



before a flood

- Clean gutters and downpipes so water can drain away as quickly as possible.
- Secure loose items around your property and garden, anything that could blow around such as garden furniture and toys.
- Where possible, move any electrical equipment to higher ground.
- Turn off and unplug any electrical appliances that may become inundated with water.
- Charge your laptop computer so you can check power outage information at www.energex.com.au
- Place important documents, personal effects and vital medical supplies in a waterproof case or bag and move to a safe and easily accessible place in case you have to evacuate.
- Secure any item that may become buoyant in your yard (gas bottles, drums, timber etc).
- Monitor Bureau of Meteorology forecasts and warnings via website <http://www.bom.gov.au> or listen to your local emergency radio station.
- Register online** for early severe weather warning alerts.

during a flood

- Consider what action you may need to take if power supplies are disconnected. Remember to turn off power at the main switch in your switchboard.
- Do not operate electrical appliances or switches while standing in water or when you have bare feet.
- Don't connect portable generators to the electrical wiring of your house or office unless a licensed electrician has installed a changeover switch. Appliances can be plugged directly into the generator but always read the manufacturer's instructions carefully.
- Stay tuned to local radio for current weather advice and warnings.
- Always follow instructions and directions from local authorities and be ready to evacuate if necessary.
- If moving around your area in boats, be aware of reduced powerline height clearances. Flood waters will make you closer to the powerlines and power poles can also lean from the force of flood waters.

after a flood

- Before entering your property make sure it is safe to do so.
- Unplug all electrical appliances affected by water and have them inspected by a licensed electrical contractor before use.
- Have a licensed electrical contractor check or isolate any parts of your electrical installation that have been affected by water - especially if the switchboard has been

submerged or if your safety switch has tripped.

- Take extra care around your switchboard. If you are in any doubt about your switchboard's safety, stay clear and call your licensed electrical contractor.
- Take care when cleaning up as fallen powerlines hidden in branches, debris or water can be extremely dangerous. Don't take chances. If you find a fallen powerline, keep well away, warn others and call ENERGEX on 13 19 62 or Triple Zero (000).

flooding & electrical equipment

Flooding following storms can have major impacts on the electricity network and your home.

While flooding brings with it many obvious hazards, the hidden danger of live electricity mixing with water is something people often don't consider, but something we must all be aware of. Severe storms often cause damage to the overhead power network, with major floods damaging underground power equipment such as transformers, and pillars.

If floodwaters rise to the level of electrical equipment, stay well away to avoid the risk of electric shock. Appliances affected by water can be extremely dangerous, and in some cases they can even be fatal, so it is important that the affected item is either thrown away or checked by an authorised electrician before it is used again.

State Emergency Service (SES)

Call 132 500 from anywhere in Queensland for emergency SES assistance in a flood or storm.

 [Back to storm safety information](#)

Disclaimer

This is not an exhaustive list of all safety matters that need to be considered. Whilst care is taken in the preparation of this material, ENERGEX does not guarantee the accuracy and completeness of information.

ENERGEX will not be responsible for any loss, damage or costs incurred as a result of any errors omissions or misrepresentations in relation to the material in this document or for any possible actions ensuing from information contained above.

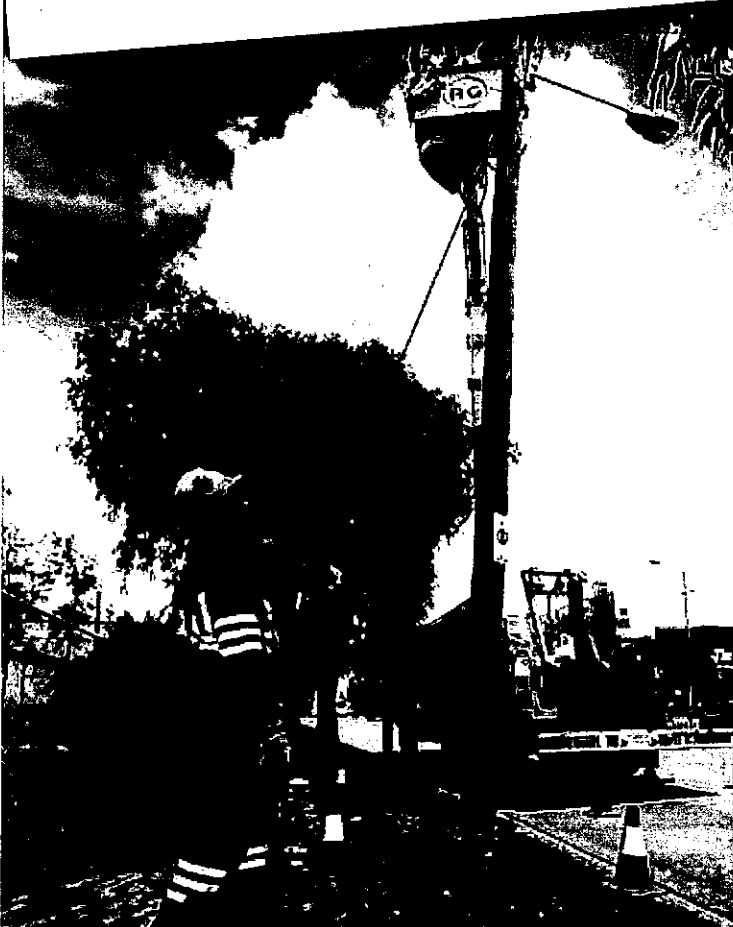
SCHEDULE G

ENERGEX Power Restoration Update



positive energy

Important information
about your electricity
restoration



Last week's floods resulted in the loss of electricity supply to more than 260,000 South East Queensland homes and businesses.

Since Monday ENERGEX crews have been working around the clock to restore power.

In the worst affected areas the electricity network will need to be repaired or even rebuilt. This is a resource intensive process which will take time.

Please call 13 62 62:

- if your home was not affected by flood water, but you are still without power
- for power restoration updates.

Power restoration update

We are aiming to have power to those homes that can be safely re-connected by Thursday afternoon.

In some areas where the electricity network has been badly damaged the restoration of power could take longer – in some cases it may be weeks.

We apologise to customers who are experiencing extended periods without power and thank you for your understanding and patience. Every effort is being made to get power back on in South East Queensland as soon as possible.

Contact ENERGEX

Loss of supply: 13 62 62

Emergency: 13 19 62

Website: energex.com.au

Follow us on twitter.com/energex

Important information about your electricity restoration

For outage information please visit energex.com.au/myarea

ENERGEX re-connection process

Properties that were not affected by flood waters

If your home was not affected by flood waters you do not need to do anything. ENERGEX crews will restore power to your property as soon as possible. Many premises that were not directly affected by flood waters have lost power because part of the electricity network that supplies that property was damaged.

Properties that were affected by flood waters

Two separate inspections must occur on a flood affected property before re-energisation. These inspections can occur in any order.

1. ENERGEX conducts the inspection of the network source attachment point (where ENERGEX's mains connect to your property), meter box and meters to the property. If a safety risk is identified (including signs of water inundation) or the property owner is not on site, ENERGEX will place a form in the meter box. The property owner will need to arrange an electrician to inspect the property.
2. A licensed electrician inspects and tests household wiring.

Residents have the option of organising their own licensed electrician to inspect the property, either before or after ENERGEX has conducted the initial electrical safety assessment.

Electricians can be found in the Yellow Pages, local newspaper classifieds or by contacting the Master Electricians Association on 1300 889 198.

If the property is electrically safe, the electrician will leave a form in the meter box and will contact ENERGEX. An ENERGEX crew will reconnect power to the property as soon as practicable.

If the property is not electrically safe, the property owner will be required to arrange for repairs to be made before ENERGEX can reconnect it back to the grid.



NOTE: The Master Electricians have set a recommended price of \$200 to provide the mandatory basic safety inspection service. Property owners have the option of seeking reimbursement through property insurance and disaster relief payments or meeting the full cost.