

## SUPPLEMENTARY STATEMENT OF CHRISTOPHER JOHN ARNOLD

I, Christopher John ARNOLD C/O [REDACTED] in the State of Queensland, state on oath as follows:

1. I am the Executive General Manager, Network Performance for ENERGEX Limited (**ENERGEX**).
2. This supplementary statement is intended to be read in conjunction with my initial statement dated 5 April 2011.
3. The purpose of this statement is to respond to matters raised concerning ENERGEX set out in the Submission on Flood Preparedness made by the Ipswich City Council (**ICC**) lodged with the Queensland Floods Commission of Inquiry (**the ICC Submission**).

### IPSWICH SPECIFIC ISSUES

#### General comments

4. Ipswich City was one of the areas in South East Queensland worst hit by the 2011 flood event. Approximately 31,000 homes and businesses experienced electricity interruptions due to flooding.
5. Because of this, ENERGEX devoted significant resources to the Ipswich area including re-directing crews from elsewhere in South East Queensland, using crews from other electricity entities and operating around the clock to assist in the restoration effort.
6. ENERGEX also maintained regular communication with the ICC by attending Ipswich Local Disaster Management Group (**LDMG**) meetings, email and telephone contact and by media outlets including the internet.
7. Despite the significant damage that occurred in Ipswich, ENERGEX restored power to approximately 26,000 homes within five days.
8. The vast majority of ENERGEX's electricity network was fully restored to pre-flood capabilities by 22 January 2011. While there are still customers in Ipswich who are not reconnected to the electricity network this is because of issues unrelated to ENERGEX. For example, homes that are not able to be safely connected due to the damage to the property.

#### Ipswich Local Disaster Management Group

9. During the 2011 flood event, ENERGEX attended the Ipswich LDMG meetings regularly.
10. At the meetings ENERGEX provided updates on the restoration effort and answered any questions from members of the LDMG. I have been informed by the attendees at those meetings that the nature of the questions from the ICC during the LDMG meetings were generally focussed on the **return** of supply to individual sites.
11. The Ipswich LDMG meetings attended by ENERGEX are set out below:
  - (a) Tuesday 11 January 2011 (evening) – attended by Mr Justin Madsen (ENERGEX Business Improvement Manager).<sup>1</sup>

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<sup>1</sup> There were a number of discussions at this meeting between ICC representatives and ENERGEX regarding critical Ipswich City sites following advice that Ipswich City would be under water within two hours of the meeting (approximately midnight).

- (b) Wednesday 12 January 2011 (morning) – attended by Mr Glen Dolan (ENERGEX Western Field Services Manager).
  - (c) Wednesday 12 January 2011 (afternoon) – attended by Mr Madsen.
  - (d) Thursday 13 January 2011 (morning) – attended by Mr Dolan.
  - (e) Thursday 13 January 2011 (afternoon) – attended by Mr Gary Madigan (ENERGEX Asset Manager South Coast).
  - (f) Friday 14 January 2011 (morning) - attended by Mr Madigan.
  - (g) Monday 17 January 2011 – attended by Mr Madigan.
  - (h) Wednesday 19 January 2011 – attended by Mr Russell Cross (ENERGEX Asset Manager West).
  - (i) Friday 21 January 2011 – attended by Mr Cross and Mr Gary Chalmers (ENERGEX - Senior Asset Engineer).<sup>2</sup>
12. Following the meeting on the morning of Friday 14 January 2011, Mr Madigan provided an update email to ENERGEX management. A copy of the email is attached and marked **CJA-1A**.
  13. ENERGEX received a specific instruction from the chair of the LDMG on the morning of Friday 14 January 2011 that ENERGEX was not required to attend the Ipswich LDMG meeting scheduled for that afternoon. As a result ENERGEX did not attend. This is recorded in the email produced at **CJA-1A**.
  14. Mr Madigan remained the ENERGEX contact for Ipswich over the weekend of 15 and 16 January 2011 and responded to queries from the Ipswich District Disaster Management Group and the ICC. There were no LDMG meetings over the weekend as far as I am aware.

#### **Interaction with the Ipswich City Council**

15. Attendance at the Ipswich LDMG meetings was not the only communication between ENERGEX and the ICC during the 2011 flood event. ENERGEX engaged in regular communications with the ICC via email and telephone. Information about outages and restoration was also available on the ENERGEX website and other media outlets.
16. For example, I am informed by Mr Cross that he provided an update on restoration activities to the ICC Mayor, Councillor Paul Pisasale, at 10:30am on Tuesday 18 January 2011. During that conversation I am informed that Mayor Pisasale said words to the effect that he was happy with ENERGEX's efforts during the flood event and requested that his feedback be passed on to staff.
17. I have reviewed the relevant documents and the key initial email communications between the ICC and ENERGEX are set out below:
  - (a) Following an earlier mobile phone conversation at approximately 21:00 hours on Tuesday 11 January 2011, at 21:29 hours Mr Ross Drabble (Chief Operating Officer (Engineering Services) – ICC) emailed Mr Paul Rainbird (ENERGEX Group Manager Network Asset Management and rostered ENERGEX Crisis Controller) to advise that it was critical that power be maintained at particular

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<sup>2</sup> This was the last Ipswich LDMG meeting.



sites. A copy of the email is attached and marked **CJA-2A**. This information was disseminated to the ENERGEX Control Room at 21:33 hours.

- (b) At 21:45 hours Mr Drabble emailed Mr Rainbird advising that the recovery centres in Ipswich also needed to have power maintained. A copy of the email is attached and marked **CJA-3A**. This information was disseminated to the ENERGEX Control Room at 21:57 hours.
  - (c) At 23:12 hours Mr Drabble emailed Mr Rainbird to advise that further facilities in Ipswich required power to be maintained. A copy of the email is attached and marked **CJA-4A**. This information was disseminated to the ENERGEX Control Room at 23.45 hours.
  - (d) At 23:46 hours Mr Rainbird responded to Mr Drabble and said words to the effect of *'Will do the best we can.'* This was acknowledged in a return email from Mr Drabble to Mr Rainbird at 23:53 hours. A copy of the email is attached and marked **CJA-5A**.
18. From 16 January 2011 ENERGEX was also regularly emailing the ICC copies of electronic maps showing the status of its restoration process. The data from the electronic maps is partially extracted at **CJA-6A**. The electronic maps provided detailed information as to outages on the ENERGEX 11,000 volt feeder network and outlined the status of each feeder in Ipswich.
19. Further data was exchanged between ENERGEX and Ipswich in relation to ENERGEX's restoration efforts as follows:
- (a) On Sunday, 16 January, Mr Anthony Spierings (ENERGEX Manager Incentives Delivery) spoke with Mr Scott Newman (Ipswich City Council System Development Officer) via telephone to share information. ENERGEX was seeking 2011 actual flood extent information and ICC was seeking power outage information.
  - (b) Mr Scott Newman responded by email at 12:32hrs on 16 January 2011 with a copy of the 1974 flood layer. This was the best information available to Mr Newman at the time.
  - (c) Mr Anthony Spierings responded by email at 15:04hrs on 16 January 2011 with spatial data files *"of the ENERGEX outages at the 11kV level at[sic] of 1200 16 January 2011"*. To assist the Commission, ENERGEX has partially extracted the data provided to the ICC and overlayed it on a street map for the City of Ipswich. A copy is attached and marked **CJA-6A**.
  - (d) Further outage maps were provided to ICC on:
    - (i) 11:09 hrs Monday 17 January 2011; and
    - (ii) 15:14 hrs Monday 17 January 2011.

#### **ENERGEX's ability to provide information relating to power**

20. In the ICC Submission it is suggested that ENERGEX did not provide:

*'reliable and timely information...as to:*

- (a) when power would be cut off;*
- (b) the areas to which power would be cut off;*
- (c) when power would be restored; and*
- (d) the areas to which power would be restored.'*



21. The flood event in the Ipswich area unfolded rapidly on the evening of Tuesday 11 January 2011. The speed with which the flood water rose meant that ENERGEX was unable to provide exact information in relation to the timing of outages. In making decisions to disconnect power to ensure safety, ENERGEX was dependent on information it received about the rate of rise of the floodwater and the progress it was making in ensuring the network was safe.
22. During the growth phase of a flood event when the magnitude of the flood remains unknown it is not possible to provide restoration times. ENERGEX can only provide information concerning restoration of power once flood waters have receded and it has had an opportunity to assess the extent of any damage.
23. As soon as information about outages and restoration was available to ENERGEX it disseminated this information as quickly as possible, including on its website. An archive of ENERGEX Media Messages is available on the Internet at the following location:[http://www.energex.com.au/media\\_centre/asp/media\\_releases.asp?index=40&m=1&y=2011](http://www.energex.com.au/media_centre/asp/media_releases.asp?index=40&m=1&y=2011).
24. During the early stages of the flood event ENERGEX was only able to provide outage information at suburb level. This was due to the significant volume of power outages throughout South East Queensland. When requested by customers, ENERGEX representatives were able to obtain more specific information. A request of this nature was made by the Ipswich LDMG and it was provided with specific information from the local ENERGEX representative.

#### **Redirection of crews from Brisbane to Ipswich**

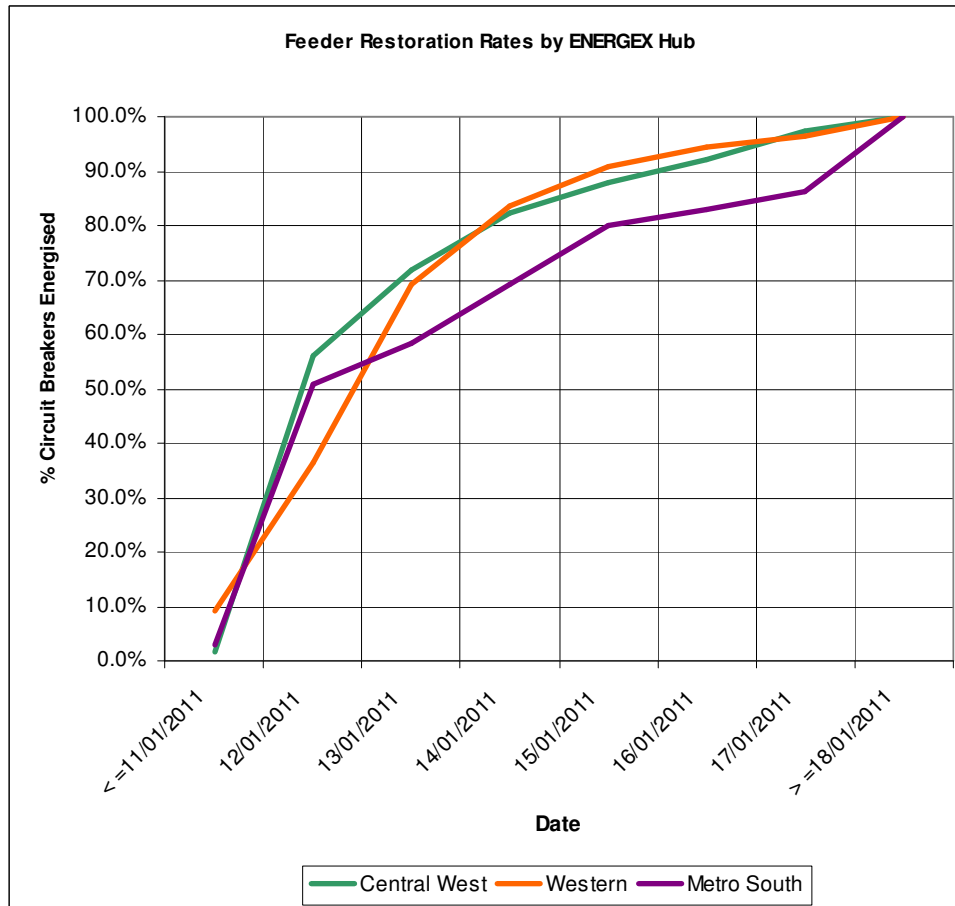
25. In the ICC Submission the comment is made that:  
  
*'...an ENERGEX representative told a Council officer that as soon as the flood waters in Brisbane receded ENERGEX crews would be redirected from Ipswich to Brisbane and in particular to the Brisbane CBD because the restoration of power to the Brisbane CBD was ENERGEX's highest priority.'*
26. I have made enquires and based on those enquiries I am not aware of any significant redirection of crews from Ipswich to Brisbane. However, it is possible that certain specialist crews were reallocated during the course of the flood event. Even if this did occur many additional crews were provided into ENERGEX's Western area (defined as ENERGEX's Western hub that covers Ipswich and areas further West), as detailed below.
27. During the flood event the number of crews working in the Western Area was increased as follows:
  - (a) On 10 January 2011, ENERGEX relocated crews from Metro North to the Western Area. This was followed by additional crews from Central West and South Coast on 14 January 2011, plus crews from the North Coast on 16 January 2011.
  - (b) On 17 January 2011 ENERGEX contractor crews from Thiess, J & P Richardson and Formway were working in the Western Area.
  - (c) On 17 January 2011 crews from interstate electricity entities (including from Energy Australia, Integral, Jemena, Country Energy and Ergon Energy) were working in the Western Area.



28. The table below sets out the crew numbers deployed to the Western Area by ENERGEX during the flood event, taken from ENERGEX's recording system. Given that on a usual work day only 30 to 50 crews are deployed to the area, these numbers demonstrate that ENERGEX ensured additional resources were available to the Western region including Ipswich during the flood event.

Date	Total Crews
10/01/2011	128
11/01/2011	114
12/01/2011	55
13/01/2011	88
14/01/2011	156
15/01/2011	171
16/01/2011	141
17/01/2011	161
18/01/2011	160
19/01/2011	135
20/01/2011	127
21/01/2011	107
22/01/2011	93

29. The deployment of additional crews to the Western Area was achieved despite the fact that a number of ENERGEX personnel (including field crew employees) were personally impacted by the flood event and during the flood peak on 12 and 13 January 2011, some personnel were stranded and unable to attend work.
30. Following its review of the ICC Submission, ENERGEX has conducted some additional analysis of the re-energising of 11,000 volt feeders by ENERGEX Hub. This is outlined in Table 1 below and further in the schedule of reconnections by ENERGEX Hub attached and marked **CJA-7A**.



**Table 1 – ENERGEX Feeder Restoration Rates by ENERGEX Hub<sup>3</sup>**

31. Table 1 demonstrates that from 13 January 2011 onwards the restoration rate progressed faster in the Western Area than in most other locations.

### **Restoration of power to the Ipswich Iceworks, Polar Ice**

32. The ICC Submission suggests ENERGEX did not respond immediately to a request to restore power to the Ipswich Iceworks (referred to as Polar Ice). ENERGEX disputes this suggestion. ENERGEX responded in a timely manner to the request to restore power.
33. ENERGEX records demonstrate the following (which should be read in conjunction with the geographic map of the high voltage feeder supplying Polar Ice attached and marked **CJA-8A** and the extract from the ENERGEX Substation Automation Control System (**SACS**) attached and marked **CJA-9A**):
- (a) Polar Ice is supplied power by the ENERGEX 11,000 volt feeder 'IPS1B' from the Ipswich South substation.
  - (b) The electricity supply to Polar Ice was momentarily interrupted at approximately 18:39 hours on Tuesday 11 January 2011 when ENERGEX opened the 11,000 volt switch X14140-B due to rising flood waters.
  - (c) Polar Ice's electricity supply was disconnected due to rising flood waters at approximately 20:33 hours on Tuesday 11 January 2011. The safety reasons

<sup>3</sup> The count of feeders re-energised on 12 January 2011 is skewed by the large number of interruptions to various 11,000 volt feeders in the Brisbane metropolitan area during the interruption of power at the Powerlink Rocklea substation on late 12 January 2011.



behind why this was necessary have been explained in my statement of 5 April 2011.

- (d) ENERGEX opened the feeder circuit breaker supplying the 11,000 volt feeder 'IPS1B' at 00:24 hours on Wednesday 12 January 2011 due to further rising flood waters.
  - (e) ENERGEX marked the job as complete for restoration of supply to the majority of the 11,000 volt feeder 'IPS1B', including to the part that provides power to Polar Ice, at 21:43 hours on Thursday 13 January 2011.
34. An image of Polar Ice on 12 January 2011 is attached and marked **CJA-10A**. It is evident from the image that Polar Ice was significantly affected by flood waters on 12 January 2011. ENERGEX had to work quickly and efficiently to restore power in the time it did on 13 January 2011.
35. It has been reported to me by Mr Cross that the first mention of Polar Ice at the LDMG meetings was on Monday 17 January 2011. This was approximately four days after ENERGEX had restored power supply to the area and one day after ENERGEX had supplied the ICC with an electronic map demonstrating that supply had been restored to that area.
36. Immediately following the 17 January meeting Mr Madigan telephoned Polar Ice to confirm that power had been restored to its operation. Polar Ice confirmed that it had.

#### **Restoration of power to Ipswich generally**

37. ENERGEX agrees with the ICC Submission that the supply of electricity is a very important community service. ENERGEX takes its responsibilities as an electricity distributor very seriously.
38. Customers such as hospitals, medical centres, nursing homes and aged care facilities are priority customers for restoration of supply. ENERGEX stores the details of priority customers in a database called ENERGEX PRICON (Priority Customer). This database is available and is consulted by ENERGEX's operational staff.
39. During events like the 2011 flood event, ENERGEX must balance the need to restore power as soon as possible against the need to work safely and protect members of the public and its employees. The worst possible result for ENERGEX in the flood events would have been an electricity related incident resulting in injuries to staff or the community. ENERGEX's entire response and restoration strategy was developed on the basis that minimising the safety risk was the first priority.

#### **Use of Australian Defence Force Generators**

40. The possibility of using Australian Defence Force (**ADF**) generators was raised by the ICC on 19 January 2011. By the time this suggestion was made ENERGEX had already restored the network around Ipswich or where that was not possible, had already connected generators to provide power. As a result there was no need for ICC to rely on ADF generators.

#### **Directions from the ICC**

41. The ICC Submission seeks a clear understanding of:
- '...whether ENERGEX, as the relevant power utility, is amenable to direction under the Act from the Ipswich LDMG or the LDC or, alternatively, ought be permitted to conduct its operations independently of any such directions.'*

42. ENERGEX operates within a broad range of legislative requirements and must comply with a number of Acts, Regulations and licences governing the electricity industry including the National Electricity Rules, Electricity Act and Electricity Industry Code.
43. ENERGEX's position is that this regulatory system operates well including in an emergency situation.
44. Working within the regulatory framework set out above, ENERGEX strives at all times to accommodate all reasonable requests from all levels of government, agencies and disaster management groups provided the requests are within its power and capabilities. This has been evidenced above by the communication and actions undertaken by ENERGEX in response to requests from the LDMG.
45. ENERGEX has the relevant expertise and powers under the Electricity Act to effectively and safely manage the electricity distribution network. It is therefore important that it is able to make decisions about the operation of the network independently of directions from a local authority or other entity which does not have the same level of expertise. It is unnecessary to amend the current regime.

SWORN UNDER OATH by CHRISTOPHER JOHN ARNOLD on

29 APRIL 2011

at

BRISBANE

in the presence of:

Deponent

Solicitor/Commissioner for  
Declarations/Justice of the Peace



## ATTACHMENT CJA-1A

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**From:** MADIGAN Gary (ENERGEX)

**Sent:** Friday, 14 January 2011 12:01 PM

**To:** RAINBIRD Paul (ENERGEX); LENDICH Mark (ENERGEX); ARNOLD Chris (ENERGEX); DOLAN Glen (ENERGEX); MADSEN Justin (ENERGEX); RUSSELL David (ENERGEX); KERWIN Stephen (ENERGEX); HARTFIEL Neville (ENERGEX); HAGER Andrew (ENERGEX); CHALMERS Gary (ENERGEX)

**Subject:** Feedback from Ipswich LDMG / DDC meetings

Folks

I attended Ipswich LDMG meetings at 3pm yesterday and 9-00am today. Some key points...

- I gave ENERGEX update i.e. no. customers off, target for restoration today and crew status for western hub. There were no specific concerns about ENERGEX's response at the moment. There were a few enquiries about outages at specific sites e.g. Riverview evacuation centre (supply now restored), aged/disabled care centre at North Booval which are being followed up.
- There is a lot of interest in our restoration strategy and prioritisation.
- Explained process for enquiries for priority restoration to critical sites and generators
- Ipswich Council Contact Centre are receiving LOS enquiries also. I have provided the Ipswich Contact Centre Rep with Andrew Hager's contact details to liaise on this if required
- Health risks are a big concern. Ipswich Hospital Emerg Dept has been flat out. A Tetanus immunisation facility is being set up.
- Food & milk supplies to local shops are short in many areas
- There was a query about safety of customer PV cells in flood areas where mains supply is currently off.
- Council have received numerous offers for volunteer assistance, and are organising response and tasks for volunteers
- About 100 Army & RAAF staff are now assisting with local response & clean-up
- The Qld Governor General & Ipswich Mayor briefly addressed the meeting this morning and thanked all agencies involved to date.
- Noosa Mayor Bob Abbot was also in attendance representing the LGAQ and offering assistance when Ipswich is ready

At this stage they do not require me to attend the next meeting unless there are any critical issues or changes affecting ENERGEX's response. I have provided my contact details to the committee members.

regards  
Gary



## ATTACHMENT CJA-2A

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**From:** Ross Drabble [REDACTED]  
**Sent:** Tuesday 11 January 2011 09:29 pm  
**To:** RAINBIRD Paul (ENERGEX)  
**Subject:** Energex supplies: Ipswich CBD

Paul,

Facilities where continuation of power is critical are:

Hospital - Chelmsford Road  
Police Station - Ellenbrough Road  
Telstra Exchange - cnr East and Brisbane Streets  
ICC Offices - East and South Streets

This is not an exhaustive list and does not include a private hospital and other medical facilities. I believe the ICC offices and the hospital are on a particular/exclusive grid.

Regards

Ross Drabble | Chief Operating Officer (Engineering Services)

IPSWICH CITY COUNCIL

T [REDACTED]  
E [REDACTED]

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## ATTACHMENT CJA-3A

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**From:** Ross Drabble [REDACTED]  
**Sent:** Tuesday 11 January 2011 09:45 pm  
**To:** RAINBIRD Paul (ENERGEX)  
**Subject:** Energex supplies: Ipswich

Paul,

I have been advised the "recovery centres" should also have power.

Boys Grammar - Burnett and Woodend  
Girls Grammar - Queen Victoria Pde  
St Joseph Primary - Pine Mountain Rd (North Ipswich)  
Ipswich Showgrounds - Warwick and Salisbury Roads  
Community Church - Ripley Road  
Leichardt Avon Hall (Catholic Church) - Old Toowoomba Road

Regards

Ross Drabble | Chief Operating Officer (Engineering Services)  
IPSWICH CITY COUNCIL

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## ATTACHMENT CJA-4A

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**From:** Ross Drabble [REDACTED]  
**Sent:** Tuesday 11 January 2011 11:12 pm  
**To:** RAINBIRD Paul (ENERGEX)  
**Subject:** Energex supplies: Ipswich CBD

Paul,

Other facilities raised with me are:

ICC communications centre Brisbane Street  
Woolworths at Riverlink shopping centre

Regards  
Ross Drabble | Chief Operating Officer (Engineering Services)  
IPSWICH CITY COUNCIL  
[REDACTED]

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## ATTACHMENT CJA-5A

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**From:** RAINBIRD Paul (ENERGEX) [REDACTED]  
**Sent:** Tuesday 11 January 2011 11:46 pm  
**To:** Ross Drabble  
**Subject:** Re: Energex supplies: Ipswich CBD

Thanks Ross ... Will do the best we can.

Regards

Paul Rainbird  
Group Manager Network Asset Management  
ENERGEX

Sent from my iPhone

On 11/01/2011, at 11:11 PM, Ross Drabble [REDACTED] wrote:

Paul,

Other facilities raised with me are:

ICC communications centre Brisbane Street  
Woolworths at Riverlink shopping centre

Regards

Ross Drabble | Chief Operating Officer (Engineering Services)  
IPSWICH CITY COUNCIL

[REDACTED]

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## ATTACHMENT CJA-6A





# IPSWICH CITY

January 2011

SOMERSET  
REGIONAL  
COUNCIL

BRISBANE  
CITY  
COUNCIL

IPSWICH  
CITY  
COUNCIL

LOGAN  
CITY  
COUNCIL

- 11kV Feeders 0% Restored
- 11kV Feeders 0-50% Restored
- 11kV Feeders 50-100% Restored
- 11kV Feeders 100% Restored
- LGA\_Boundaries
- Jan Flood Extent

ENERGEX Network as of 12:00hrs, 16 January 2011. Map only shows flood affected feeders. If a feeder is not shown, there has been no loss of supply."



## ATTACHMENT CJA-7A

### SCHEDULE OF RECONNECTIONS BY ENERGEX HUB

Date/Time Off	Date/Time ON	Hub
10/01/11 16:48	10/01/11 18:03	North Coast
10/01/11 17:09	10/01/11 18:58	Western
10/01/11 15:06	10/01/11 19:46	Western
10/01/11 21:53	10/01/11 22:40	North Coast
10/01/11 22:42	10/01/11 22:44	South Coast
10/01/11 21:53	10/01/11 22:59	North Coast
11/01/11 00:00	11/01/11 01:18	Metro North
11/01/11 04:04	11/01/11 04:23	South Coast
11/01/11 04:17	11/01/11 04:29	Western
11/01/11 04:48	11/01/11 04:49	Metro South
10/01/11 16:43	11/01/11 09:18	Western
11/01/11 08:52	11/01/11 10:23	South Coast
11/01/11 09:04	11/01/11 10:32	Metro South
11/01/11 11:29	11/01/11 11:54	North Coast
11/01/11 12:37	11/01/11 12:38	Metro North
11/01/11 09:15	11/01/11 13:07	Central West
11/01/11 08:45	11/01/11 14:31	Western
11/01/11 11:40	11/01/11 15:41	Metro North
11/01/11 11:40	11/01/11 15:42	Metro North
11/01/11 00:49	11/01/11 16:34	Metro North
11/01/11 00:49	11/01/11 16:34	Metro North
11/01/11 00:49	11/01/11 16:34	Metro North
11/01/11 00:49	11/01/11 16:34	Metro North
11/01/11 11:35	11/01/11 17:05	Central West
11/01/11 17:42	11/01/11 17:44	North Coast
11/01/11 16:23	11/01/11 18:16	North Coast
11/01/11 17:08	11/01/11 19:14	Metro North
11/01/11 17:39	11/01/11 20:48	North Coast
12/01/11 01:53	12/01/11 03:08	Western
11/01/11 23:29	12/01/11 03:23	Western
12/01/11 04:05	12/01/11 05:35	Metro South
12/01/11 06:12	12/01/11 06:14	Western
12/01/11 06:12	12/01/11 06:15	Western
12/01/11 01:06	12/01/11 06:17	Western
11/01/11 23:07	12/01/11 08:36	Western
10/01/11 14:17	12/01/11 10:13	Western
12/01/11 07:45	12/01/11 10:15	Central West
12/01/11 09:41	12/01/11 10:41	Metro South
12/01/11 07:45	12/01/11 10:45	Central West
12/01/11 08:15	12/01/11 11:44	Central West
12/01/11 11:10	12/01/11 12:11	Central West
12/01/11 03:00	12/01/11 12:47	Central West
12/01/11 12:53	12/01/11 13:29	Western
12/01/11 12:53	12/01/11 13:29	Western
12/01/11 12:53	12/01/11 13:29	Western
12/01/11 14:23	12/01/11 14:44	Metro North
12/01/11 13:32	12/01/11 15:17	Metro North
12/01/11 14:00	12/01/11 15:24	Metro North
12/01/11 10:55	12/01/11 15:36	Central West
12/01/11 15:20	12/01/11 15:55	Central West











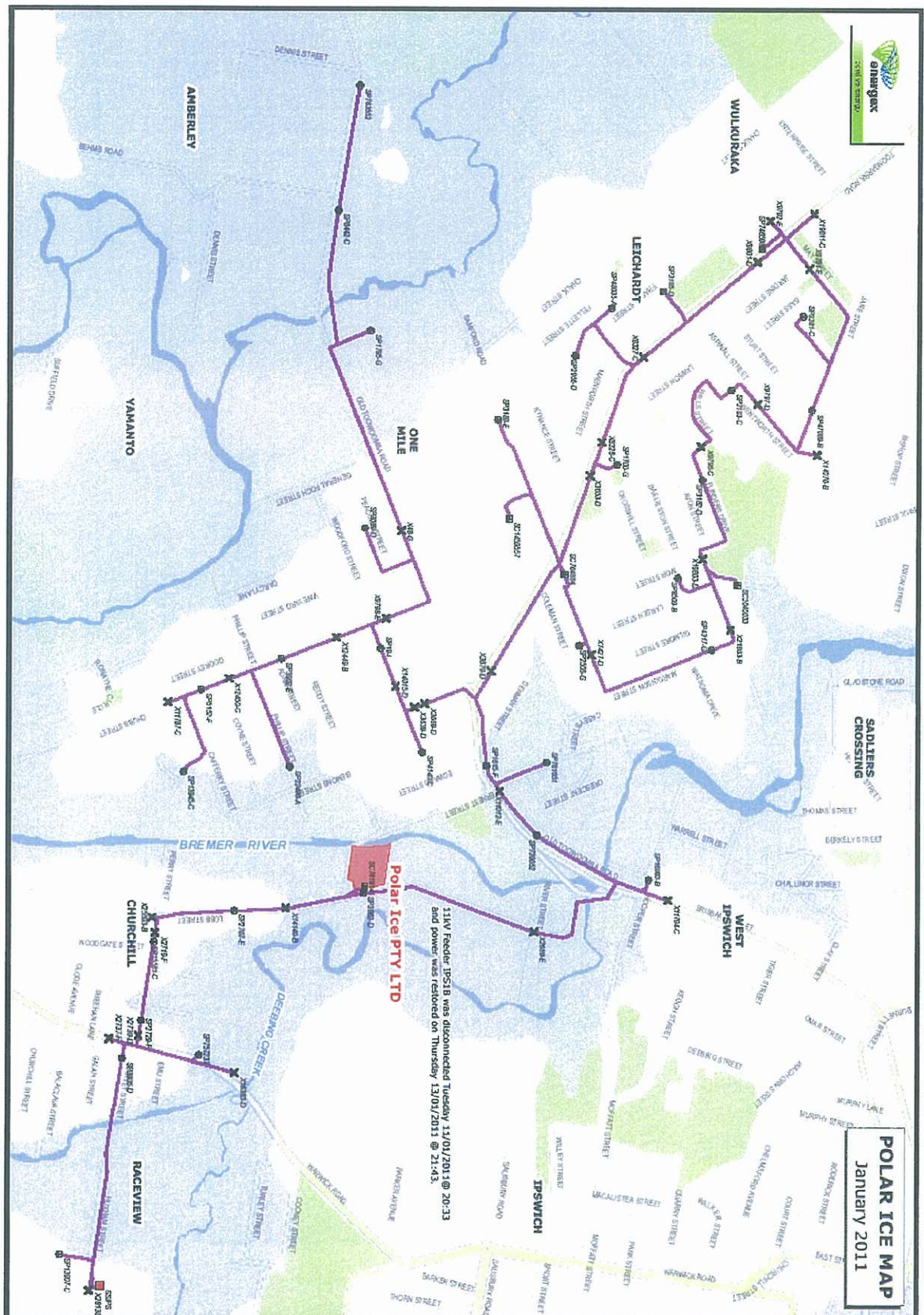
Date/Time Off	Date/Time ON	Hub
12/01/11 12:05	13/01/11 12:15	Central West
12/01/11 13:24	13/01/11 12:27	Metro North
11/01/11 23:07	13/01/11 12:38	Western
11/01/11 23:07	13/01/11 12:40	Western
12/01/11 14:00	13/01/11 12:49	Central West
11/01/11 23:07	13/01/11 12:59	Western
12/01/11 12:15	13/01/11 13:45	Metro North
12/01/11 13:45	13/01/11 13:45	Central West
12/01/11 23:36	13/01/11 13:54	Central West
12/01/11 13:40	13/01/11 14:21	Central West
12/01/11 23:36	13/01/11 14:28	Central West
11/01/11 23:07	13/01/11 14:29	Western
12/01/11 16:30	13/01/11 14:56	Metro South
12/01/11 13:15	13/01/11 15:15	Central West
12/01/11 13:37	13/01/11 15:48	Central West
12/01/11 13:55	13/01/11 15:50	Central West
11/01/11 18:39	13/01/11 18:28	Western
12/01/11 13:46	13/01/11 18:58	Metro South
12/01/11 13:15	13/01/11 19:15	Metro North
12/01/11 13:56	13/01/11 19:20	Metro South
11/01/11 23:07	13/01/11 19:33	Western
11/01/11 23:07	13/01/11 19:33	Western
11/01/11 23:07	13/01/11 19:42	Western
11/01/11 23:07	13/01/11 19:46	Western
12/01/11 13:45	13/01/11 20:15	Metro South
12/01/11 11:58	13/01/11 20:40	Central West
12/01/11 08:09	13/01/11 23:56	Central West
12/01/11 01:09	14/01/11 02:42	Western
12/01/11 14:45	14/01/11 03:15	Metro South
12/01/11 03:09	14/01/11 03:30	Western
12/01/11 11:42	14/01/11 06:10	Central West
12/01/11 11:45	14/01/11 06:15	Central West
12/01/11 09:32	14/01/11 07:49	Central West
11/01/11 23:07	14/01/11 09:18	Western
11/01/11 17:44	14/01/11 10:15	Central West
12/01/11 16:30	14/01/11 10:30	Metro South
12/01/11 13:30	14/01/11 10:31	Central West
12/01/11 20:35	14/01/11 11:02	Metro North
11/01/11 23:39	14/01/11 13:12	Western
12/01/11 10:15	14/01/11 14:45	Metro South
12/01/11 11:11	14/01/11 15:06	Central West
12/01/11 12:15	14/01/11 16:15	Metro South
12/01/11 14:15	14/01/11 16:15	Metro South
12/01/11 10:22	14/01/11 17:00	Central West
12/01/11 14:00	14/01/11 17:07	Metro South
12/01/11 04:26	14/01/11 17:15	Central West
12/01/11 14:45	14/01/11 17:33	Central West
12/01/11 14:45	14/01/11 17:33	Central West
12/01/11 14:45	14/01/11 17:33	Central West
12/01/11 14:45	14/01/11 17:33	Central West
11/01/11 23:07	14/01/11 17:53	Western
12/01/11 07:39	14/01/11 18:22	Western
11/01/11 07:28	14/01/11 18:23	Western
11/01/11 07:28	14/01/11 18:23	Western
12/01/11 11:15	14/01/11 23:45	Metro South
12/01/11 11:24	15/01/11 00:07	Metro South



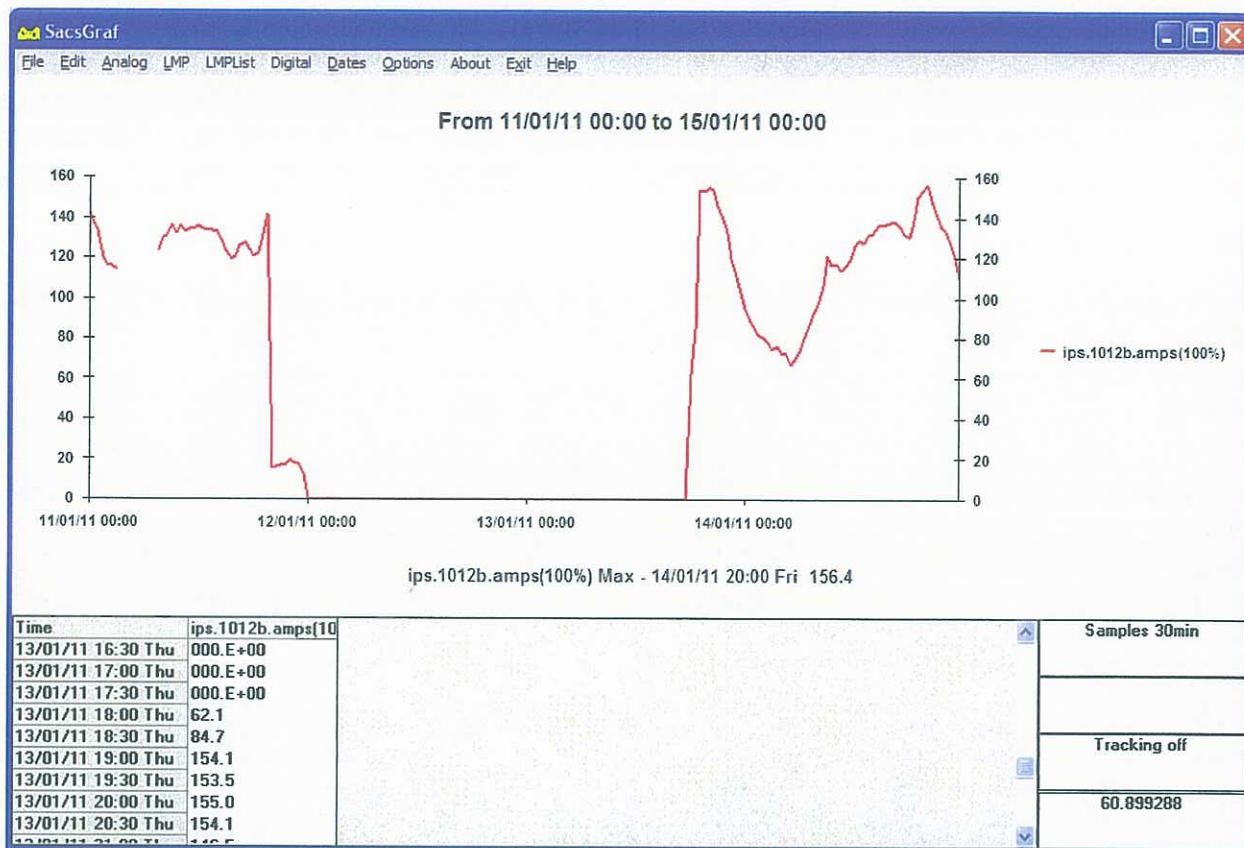
Date/Time Off	Date/Time ON	Hub
12/01/11 11:24	15/01/11 00:07	Metro South
12/01/11 11:24	15/01/11 00:07	Metro South
12/01/11 11:14	15/01/11 08:45	Metro South
12/01/11 13:45	15/01/11 11:45	Metro South
12/01/11 13:45	15/01/11 11:45	Metro South
11/01/11 21:03	15/01/11 14:59	Western
11/01/11 13:00	15/01/11 15:09	Western
11/01/11 07:44	15/01/11 15:45	Western
12/01/11 13:45	15/01/11 16:15	Metro South
12/01/11 13:28	15/01/11 16:29	Central West
11/01/11 23:49	15/01/11 17:12	Western
12/01/11 12:15	15/01/11 19:45	Central West
12/01/11 12:15	15/01/11 20:15	Central West
12/01/11 12:15	15/01/11 20:58	Central West
12/01/11 12:15	15/01/11 23:00	Central West
12/01/11 12:15	15/01/11 23:05	Central West
12/01/11 13:45	16/01/11 09:45	Metro South
11/01/11 23:07	16/01/11 10:34	Western
12/01/11 13:28	16/01/11 12:30	Central West
12/01/11 16:05	16/01/11 13:51	Central West
12/01/11 16:05	16/01/11 13:51	Central West
12/01/11 11:25	16/01/11 14:17	Metro South
11/01/11 23:07	16/01/11 17:10	Western
11/01/11 15:53	16/01/11 17:21	Central West
12/01/11 13:26	16/01/11 19:39	Central West
12/01/11 10:45	17/01/11 00:15	Metro South
12/01/11 13:45	17/01/11 03:45	Central West
12/01/11 14:30	17/01/11 07:00	Central West
12/01/11 14:30	17/01/11 07:00	Central West
12/01/11 13:15	17/01/11 15:15	Central West
12/01/11 12:15	17/01/11 18:00	Central West
12/01/11 03:58	17/01/11 18:40	Central West
11/01/11 23:07	17/01/11 19:52	Western
12/01/11 07:15	17/01/11 20:15	Metro South
12/01/11 00:33	18/01/11 12:26	Central West
12/01/11 08:45	18/01/11 23:45	Central West
12/01/11 08:02	19/01/11 04:27	Central West
12/01/11 21:00	19/01/11 08:45	Western
11/01/11 08:55	20/01/11 10:21	Western
11/01/11 14:27	20/01/11 21:58	Metro South
12/01/11 07:20	20/01/11 22:59	Metro South
11/01/11 21:24	21/01/11 00:49	Metro South
11/01/11 21:24	21/01/11 01:12	Metro South
11/01/11 21:24	21/01/11 01:36	Metro South
11/01/11 21:24	21/01/11 02:18	Metro South
11/01/11 21:24	21/01/11 13:58	Metro South
11/01/11 21:24	22/01/11 12:04	Metro South
11/01/11 21:24	30/01/11 18:30	Metro South



# ATTACHMENT CJA-8A



## ATTACHMENT CJA-9A



Screen capture from ENERGEX SACSGraph application displaying feeder loads on IPS1B (includes supply to Polar Ice)

This is an extract from the ENERGEX Substation Automation Control System (SACS) showing the electrical load on ENERGEX 11 000 volt feeder IPS1B. Polar Ice, along with a number of other customers, from this feeder. The load is measured in amperes (amps); with 52 amps load equating to approximately 1 000 kilowatts of load. The graph shows ENERGEX disconnecting load from the network in stages at approximately 20:00hrs 11 January 2011. Then completely disconnecting the network around 00:00hrs on 12 January 2011. Then starting to restoring supply at approximately 18:00hrs on 13 January 2011, with the majority of supply restored by 19:00hrs on 13 January 2011.



## ATTACHMENT CJA-10A



Photo extracted from [www.abc.net.au](http://www.abc.net.au), attributed to Paul Binnie, published 12 January 2011.