Performance against minimum service standards (MSS) by Energex and Ergon Energy for the 2014-15 financial year

Queensland Government

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Background

There are currently two Queensland distribution entities: Energex Limited (Energex) in south east Queensland and Ergon Energy Corporation Limited (Ergon Energy) in regional Queensland. Both entities operate distribution networks under Distribution Authorities issued to them by the Regulator under the *Electricity Act 1994* and administered by the Department of Energy and Water Supply (DEWS).

From 1 July 2014, as part of ongoing reforms to the Queensland electricity sector, the minimum service standards (MSS) of electricity distributors and the requirement for them to report their performances against the MSS were incorporated into their respective Distribution Authorities.

Prior to this date the MSS and reporting requirements were contained within the Electricity Industry Code and the reports were published online by the Queensland Competition Authority (QCA).

Minimum Service Standards

The conditions of the Distribution Authorities held by Energex and Ergon Energy require that they use their best endeavours to meet minimum service standards (MSS) in relation to the frequency and duration of electricity distribution outages. The MSS are put in place to ensure that Queensland electricity customers receive a minimum prescribed level of supply reliability. If a distributor does not meet its MSS limits it must provide reasons for any failure and a proposal to improve its performance.

The MSS limits for Energex and Ergon Energy differ, with those set for Energex being more stringent. This reflects the differences in their distribution networks and the environments in which they operate.

Under the conditions of their Distribution Authorities each entity is required to report on its performance against MSS limits within two months of the end of each quarter. Once the June quarterly report of each entity is received DEWS can ascertain whether the distributor has performed within its MSS limits for the financial year.

This report details the performance of Energex and Ergon Energy against the MSS limits set for the 2014-15 financial year.

Distribution Networks

The MSS reports are not intended to enable performance comparisons between Energex and Ergon Energy. Due to their very different operating environments and distribution network characteristics, any such comparison would be inappropriate. The MSS reports can however be used to gauge the year-on-year performance of each distributor.

The Energex distribution network supplies largely urbanised areas of south east Queensland. Ergon Energy's network is spread across the remainder of the state with a significant number of long, isolated feeders and lower customer densities. The individual prescribed MSS limits for each distribution entity reflect these network differences.

MSS requirements

The MSS requirements are set in relation to the frequency and duration of interruptions to the distribution services provided by Energex and Ergon Energy. An interruption includes any temporary unavailability of electricity supply to a customer associated with an outage of the electricity distribution network.

The MSS are average measures of performance across each distribution network (categorised by feeder type) excluding the impact of certain excluded events such as severe weather events. To ensure a low probability of exceeding their MSS limits in a particular year, distributors must aim to achieve a higher level of performance than the MSS limits. The MSS limits for each financial year are detailed in the Distribution Authority of each distribution entity.

There are six MSS limits for each distributor. Three MSS limits relate to the average duration of service interruptions and three to the average frequency of service interruptions. Reliability performance is expressed using the following measures:

a) ***System average interruption duration index*** **(SAIDI)** is the sum of all customer interruption durations (measured in minutes) divided by the total number of customers (averaged over the financial year) for each distributor; and

b) ***System average interruption frequency index*** **(SAIFI)** is the total number of customer interruptions, divided by the total number of customers (averaged over the financial year) for each distributor.

SAIDI and SAIFI performance is measured and reported based on the broad feeder categories of CBD, urban, short rural and long rural feeders. The MSS limits differ between feeder types reflecting the performance that should reasonably be achieved on each type.

Some interruptions may be excluded by the distributors when reporting performance against MSS limits. Possible exclusions include interruptions commencing on a major event day, interruptions of one minute or less (momentary interruptions), interruptions resulting from a failure of the shared transmission grid and interruptions caused by the failure of a customer's electrical installation. Interruptions resulting from a direction by a police officer or other authorised person who is exercising powers in relation to public safety are also excluded. A complete list of excluded interruptions is set out in the Distribution Authority of each distribution entity.

Failure to perform within MSS limits

If a distributor exceeds the same MSS limit (i.e. SAIDI limit or SAIFI limit) for three financial years in a row, this is considered a 'systemic failure' and represents a contravention of the conditions of the entity's distribution authority.

Under the *Electricity Act 1994, a*ny such contravention may incur disciplinary action such as the cancellation or suspension of a distribution authority and/or the imposition of a pecuniary civil penalty.

Summary of Energex performance

Performance against the MSS limits

Energex's SAIDI and SAIFI performance before and after exclusions and its MSS limits for 2014-15 as prescribed in its distribution authority are presented in Tables 1 and 2. Energex's SAIDI performance was well within the set limit for all feeder types for 2014-15. In terms of SAIFI, Energex was within its SAIFI limits for its urban and short rural feeders.

Energex slightly exceeded its CBD SAIFI target (0.150) by 0.008 due to a significant outage in the Brisbane CBD on 9 March 2015. This is considered a one-off event and Energex continues to monitor its performance with the view to ensuring targets are not exceeded.

Performance against the SAIDI limits

Table 1 Energex SAIDI performance (minutes)

	2011-12*	2012-13*	2013-14	2014-15	SAIDI MSS limits 2014-15
Total before exclusions					
CBD feeders	9.17	4.58	4.069	3.699	
Urban feeders	67.16	403.90	94.944	190.512	
Short rural feeders	215.62	1033.09	232.873	263.357	
Total net of exclusions					
CBD feeders	8.16	1.41	**3.560**	**3.699**	**15**
Urban feeders	66.65	71.92	**74.864**	**90.813**	**106**
Short rural feeders	201.81	156.94	**173.392**	**178.592**	**218**

Performance against the SAIFI limits

Table 2 Energex SAIFI performance (number of interruptions)

	2011-12*	2012-13*	2013-14	2014-15	SAIFI MSS limits 2014-15
Total before exclusions					
CBD feeders	0.04	0.01	0.184	0.158	
Urban feeders	0.74	1.19	0.916	0.957	
Short rural feeders	1.80	2.31	1.817	1.861	
Total net of exclusions					
CBD feeders	0.04	0.01	**0.058**	**0.158**	**0.150**
Urban feeders	0.74	0.79	**0.804**	**0.786**	**1.260**
Short rural feeders	1.73	1.53	**1.556**	**1.546**	**2.460**

** previously reported by the QCA*

Excluded interruptions

Table 3 details the interruptions that Energex has excluded in determining performance against its SAIDI and SAIFI limits during 2014-15. The number of excluded interruptions on urban and short rural feeders was slightly higher in 2014-15 compared to 2013-14, due mainly to severe weather events occurring. However, there were no exclusions reported on CBD feeders during 2014-15.

Table 3 Energex exclusions from MSS reporting for 2014-15

	Exclusions from SAIDI (minutes)	Exclusions from SAIFI (interruptions)
Interruption of a duration of one minute or less		
None in 2014-15		
Interruption resulting from load shedding due to a shortfall in generation		
None in 2014-15		
Interruption resulting from a direction by AEMO, a system operator or any other body exercising a similar function under the Electricity Act, National Electricity Rules or National Electricity Law		
None in 2014-15		
Interruption resulting from automatic shedding of load under the control of under-frequency relays following the occurrence of a power system under-frequency condition described in the power system security and reliability standards		
None in 2014-15		
Interruption resulting from failure of the shared transmission grid		
None in 2014-15		
Interruption from direction by police officer or other authorised person in relation to public safety		
	SAIDI	SAIFI
CBD feeder	0.000	0.000
Urban feeder	0.000	0.000
Short rural feeder	0.001	0.000
Interruption to the supply of electricity on a distribution entity's supply network which commences on a major event day		
	SAIDI	SAIFI
CBD feeder	0.000	0.000

Urban feeder	99.604	0.171
Short rural feeder	84.751	0.315
Interruption caused by customer electrical installations		
	SAIDI	SAIFI
CBD feeder	0.000	0.000
Urban feeder	0.095	0.000
Short rural feeder	0.013	0.000
Total exclusions		
	SAIDI	SAIFI
CBD feeder	**0.000**	**0.000**
Urban feeder	**99.699**	**0.171**
Short rural feeder	**84.765**	**0.315**

Major event days

A major event day is one where the daily SAIDI value exceeds a certain threshold, which is based on the distributor's historical reliability performance. Major event days are often associated with severe weather events that cause significant, widespread and prolonged customer supply interruptions. Major event days are excluded when assessing the performance of distributors against MSS limits.

Energex reported seven major event days during 2014-15:

a) 18 July 2014, due to high winds impacting the Energex network;
b) 19 November 2014, due to storms and heavy rain impacting the Energex network;
c) 27 November 2014, due to severe storms impacting the Energex network;
d) 8 December 2014, due to storms impacting the Energex network;
e) 18 December 2014, due to storms impacting the Energex network;
f) 31 January 2015, due to storms impacting the Energex network; and
g) 1 May 2015, due to an east coast low affecting the Energex network.

Summary of Ergon Energy performance

Performance against the MSS limits

Ergon Energy's SAIDI and SAIFI performance before and after exclusions and its MSS limits for 2013-14 as prescribed in its distribution authority are presented in Tables 4 and 5.

Ergon Energy's SAIDI performance was within the set limit for its urban and short rural feeders for 2014-15. The severity of the summer storm season affected rural segments of Ergon Energy's distribution network resulting in a long rural feeder SAIDI performance exceeding its target by 88.7546 minutes for 2014-15.

In terms of SAIFI, Ergon Energy was within the set limit across all feeders for 2014-15.

Ergon Energy reported the severity of the 2014-15 summer storm season, and in particular, the 70 per cent increase in lightning strikes compared to the historical average, impacted performance on its rural long feeders.

Ergon Energy reported that over 2015-16 it will aim to finalise and implement key programs from its reliability improvement plan in order to meet its MSS obligations.

Performance against the SAIDI limits

Table 4 Ergon Energy SAIDI performance (minutes)

	2011-12*	2012-13*	2013-14	2014-15	SAIDI MSS limits 2014-15
Total before exclusions					
Urban feeders	189.15	274.85	165.62	836.4232	
Short rural feeders	439.61	697.07	440.11	1042.8636	
Long rural feeders	1130.14	1566.54	850.86	1590.7802	
Total net of exclusions					
Urban feeders	136.28	135.12	**118.49**	**133.6567**	**149**
Short rural feeders	391.95	341.44	**291.91**	**359.0826**	**424**
Long rural feeders	1041.58	951.53	**798.42**	**1052.7546**	**964**

Performance against the SAIFI limits

Table 5 Ergon Energy SAIFI performance (number of interruptions)

	2011-12*	2012-13*	2013-14	2014-15	SAIFI MSS limits 2014-15
Total before exclusions					
Urban feeders	1.78	1.78	1.714	1.8846	
Short rural feeders	3.93	3.63	3.169	3.8963	
Long rural feeders	7.75	7.16	6.476	7.3054	
Total net of exclusions					
Urban feeders	1.41	1.49	**1.394**	**1.2686**	**1.98**
Short rural feeders	3.55	2.98	**2.767**	**3.1501**	**3.95**
Long rural feeders	7.02	6.25	**6.118**	**6.7643**	**7.40**

* previously reported by the QCA

Excluded interruptions

Table 6 details the interruptions that Ergon Energy has excluded in determining performance against its SAIDI and SAIFI limits during 2014-15. The number of exclusions in 2014-15 was significantly higher than in 2013-14, due to more severe weather events occurring across the urban and rural networks.

Table 6 Ergon Energy exclusions from MSS reporting for 2014-15

	Exclusions from SAIDI (minutes)	Exclusions from SAIFI (interruptions)
Interruption of a duration of one minute or less		
None in 2014-15		
Interruption resulting from load shedding due to a shortfall in generation		
None in 2014-15		
Interruption resulting from a direction by AEMO, a system operator or any other body exercising a similar function under the Electricity Act, National Electricity Rules or National Electricity Law		
None in 2014-15		
Interruption resulting from automatic shedding of load under the control of under-frequency relays following the occurrence of a power system under-frequency condition described in the power system security and reliability standards		
	SAIDI	SAIFI
Urban feeder	0.2886	0.0071
Short rural feeder	0.0019	0.0000
Long rural feeder	0.0000	0.0000
Interruption resulting from failure of the shared transmission grid		
	SAIDI	SAIFI
Urban feeder	15.0662	0.3900
Short rural feeder	19.7279	0.4032
Long rural feeder	9.9026	0.1531
Interruption from direction by police officer or other authorised person in relation to public safety		
	SAIDI	SAIFI
Urban feeder	0.3866	0.0063

Short rural feeder	0.0340	0.0017
Long rural feeder	0.1784	0.0093
Interruption to the supply of electricity on a distribution entity's supply network which commences on a major event day		
	SAIDI	SAIFI
Urban feeder	678.5287	0.1996
Short rural feeder	655.1883	0.3140
Long rural feeder	519.8787	0.3542
Interruption caused by customer electrical installations		
	SAIDI	SAIFI
Urban feeder	8.4965	0.0130
Short rural feeder	8.8289	0.0273
Long rural feeder	8.0658	0.0244
Total exclusions		
	SAIDI	SAIFI
Urban feeder	**702.7665**	**0.6159**
Short rural feeder	**683.7810**	**0.7462**
Long rural feeder	**538.0256**	**0.5411**

Major event days

Ergon Energy reported three major event days during 2014-15:

a) Saturday 6 December 2014, due to intense thunderstorms with damaging winds affecting Northern and Southern Queensland;
b) Wednesday 31 December 2014, due to intense thunderstorm activity affecting Southern Queensland; and
c) Friday 20 February 2015, due to Tropical Cyclone Marcia impacting Central Queensland.