Performance against minimum service standards (MSS) by Energex and Ergon Energy for the 2015-16 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 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 2015-16 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 central business district (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 2015-16 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 2015-16.

Performance against the SAIDI limits

Table 1 Energex SAIDI performance (minutes)

	2012-13*	2013-14	2014-15	2015-16	SAIDI MSS limits 2015-16
Total before exclusions					
CBD feeders	4.58	4.069	3.699	28.278	
Urban feeders	403.90	94.944	190.512	85.916	
Short rural feeders	1033.09	232.873	263.357	258.085	
Total net of exclusions					
CBD feeders	1.41	3.560	3.699	**4.680**	**15**
Urban feeders	71.92	74.864	90.813	**76.670**	**106**
Short rural feeders	156.94	173.392	178.592	**180.890**	**218**

Performance against the SAIFI limits

Table 2 Energex SAIFI performance (number of interruptions)

	2012-13*	2013-14	2014-15	2015-16	SAIFI MSS limits 2015-16
Total before exclusions					
CBD feeders	0.01	0.184	0.158	0.131	
Urban feeders	1.19	0.916	0.957	0.793	
Short rural feeders	2.31	1.817	1.861	1.760	
Total net of exclusions					
CBD feeders	0.01	0.058	0.158	**0.032**	**0.150**
Urban feeders	0.79	0.804	0.786	**0.740**	**1.260**
Short rural feeders	1.53	1.556	1.546	**1.562**	**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 2015-16.

Table 3 Energex exclusions from MSS reporting for 2015-16

	Exclusions from SAIDI (minutes)	Exclusions from SAIFI (interruptions)
Interruption of a duration of one minute or less		
None in 2015-16		
Interruption resulting from load shedding due to a shortfall in generation		
None in 2015-16		
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 2015-16		
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 2015-16		
Interruption resulting from failure of the shared transmission grid		
	SAIDI	SAIFI
CBD feeder	0.000	0.000
Urban feeder	0.000	0.000
Short rural feeder	0.001	0.000
Interruption from direction by police officer or other authorised person in relation to public safety		
	SAIDI	SAIFI
CBD feeder	23.598	0.100
Urban feeder	0.000	0.000
Short rural feeder	0.000	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	9.199	0.053
Short rural feeder	77.123	0.198
Interruption caused by customer electrical installations		
	SAIDI	SAIFI
CBD feeder	0.000	0.000
Urban feeder	0.047	0.000
Short rural feeder	0.066	0.000
Total exclusions		
	SAIDI	SAIFI
CBD feeder	**23.598**	**0.100**
Urban feeder	**9.246**	**0.054**
Short rural feeder	**77.195**	**0.198**

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 four major event days during 2015-16:

a) 29 November 2015, due to storms impacting the Energex network;
b) 10 December 2015, due to storms impacting the Energex network;
c) 4 June 2016, due to storms impacting the Energex network; and
d) 24 June 2016, due to storms impacting 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 2015-16 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 2015-16. In terms of SAIFI, whilst slightly higher than 2014-15 for urban and long rural feeders, it was within the set limit across all feeders for 2015-16.

Ergon Energy's reports that the reliability performance for the July – September 2015 quarter was favourable to the cumulative seasonally adjusted Minimum Service Standards (MSS) for 5 of the 6 performance measures. It reports that, during this period, higher than forecast planned interruptions occurred to allow remediation of defects on the high voltage distribution network. As a result, the urban category SAIDI performance is marginally exceeding the cumulative seasonally adjusted MSS at the end of the September quarter.

By comparison to the equivalent period in 2014-15, Ergon Energy's advises its overall network SAIDI and SAIFI this year has underperformed by 6.7% and 2.8% respectively. Unplanned SAIDI improved by 0.6% and planned SAIDI declined by 21.6%, while unplanned SAIFI declined by 4.0% and planned SAIFI improved by 1.5% when compared to 2014. The financial year end performance outcomes against the MSS limits for 2015-16 remain heavily dependent on the severity of the upcoming storm season and its impact on our network.

Ergon Energy reports its capital investment program for reliability improvement is considerably less than recent years. The reliability improvement capital investment for 2015-16 relates to the progression and finalisation of projects that commenced in the previous year, including a number of key reliability improvement plan initiatives and the progression of the Worst Performing Feeder Improvement Program, which is an obligation within its Distribution Authority.

Beyond the capital investments, Ergon Energy advises that it remains committed to the continual improvement of operational practices to achieve optimal reliability performance outcomes and operating efficiencies using our existing network infrastructure. However, it has advised that managing the annual variability in reliability of supply performance across the rural networks is a significant challenge. The rural networks are defined by geographically dispersed assets, and an extensively radial distribution network with a high exposure to the influences of severe weather events. The variability of weather causes significant reliability performance variation. Ergon Energy advises that it continues to use its best endeavours to maintain and operate the distribution network to manage this annual variability and with an aim of consistently achieving MSS.

Performance against the SAIDI limits

Table 4 Ergon Energy SAIDI performance (minutes)

	2012-13*	2013-14	2014-15	2015-16	SAIDI MSS limits 2015-16
Total before exclusions					
Urban feeders	274.85	165.62	836.4232	145.3321	
Short rural feeders	697.07	440.11	1042.8636	397.0792	
Long rural feeders	1566.54	850.86	1590.7802	1040.4344	
Total net of exclusions					
Urban feeders	135.12	118.49	133.6567	**127.7016**	**149**
Short rural feeders	341.44	291.91	359.0826	**349.5913**	**424**
Long rural feeders	951.53	798.42	1052.7546	**954.7147**	**964**

Performance against the SAIFI limits

Table 5 Ergon Energy SAIFI performance (number of interruptions)

	2012-13*	2013-14	2014-15	2015-16	SAIFI MSS limits 2015-16
Total before exclusions					
Urban feeders	1.78	1.714	1.8846	1.3957	
Short rural feeders	3.63	3.169	3.8963	3.1983	
Long rural feeders	7.16	6.476	7.3054	7.1775	
Total net of exclusions					
Urban feeders	1.49	1.394	1.2686	**1.2723**	**1.98**
Short rural feeders	2.98	2.767	3.1501	**3.0234**	**3.95**
Long rural feeders	6.25	6.118	6.7643	**6.7663**	**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 2015-16. Compared to the June quarter in 2015, Ergon Energy's overall network SAIDI improved by 13.8% and overall network SAIFI declined by 15.5%. Contributing to this, the unplanned SAIDI and SAIFI improved by 48.3% and 28.9% respectively, and the planned SAIDI and SAIFI declined by 8.9% and 30.5% respectively compared to the equivalent quarter last year.

Table 6 Ergon Energy exclusions from MSS reporting for 2015-16

	Exclusions from SAIDI (minutes)	Exclusions from SAIFI (interruptions)
Interruption of a duration of one minute or less		
None in 2015-16		
Interruption resulting from load shedding due to a shortfall in generation		
None in 2015-16		
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 2015-16		
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	0.5753	0.0263
Short rural feeder	0.2188	0.0050
Long rural feeder	0.8232	0.0245
Interruption resulting from failure of the shared transmission grid		
	SAIDI	SAIFI
Urban feeder	15.0662	0.0118
Short rural feeder	0.1731	0.0277
Long rural feeder	0.167	0.0096
Interruption from direction by police officer or other authorised person in relation to public safety		
	SAIDI	SAIFI
Urban feeder	0.0362	0.0004
Short rural feeder	0.2713	0.0035
Long rural feeder	0.5061	0.0038

Interruption to the supply of electricity on a distribution entity's supply network which commences on a major event day		
	SAIDI	SAIFI
Urban feeder	16.928	0.0847
Short rural feeder	46.7658	0.1384
Long rural feeder	83.8269	0.3730
Interruption caused by customer electrical installations		
	SAIDI	SAIFI
Urban feeder	0.0396	0.0002
Short rural feeder	0.0589	0.0002
Long rural feeder	0.3965	0.0003
Total exclusions		
	SAIDI	SAIFI
Urban feeder	**17.6305**	**0.1234**
Short rural feeder	**47.4878**	**0.1749**
Long rural feeder	**85.7197**	**0.4112**

Major event days

Ergon Energy reported the following major event days during 2015-16:

a) 28 November 2015 - Severe thunderstorms with lightning and strong winds affecting parts of the Wide Bay region, with Yarraman area principally affected.
b) 23 December 2015 - Severe thunderstorms with hail, lightning, and strong winds affecting parts of Queensland's South West region, with Dalby, Toowoomba and Millmerran areas principally affected.
c) 29 January 2016 - Severe thunderstorms with lightning and strong winds affecting parts of the Wide Bay region, with Hervey Bay, Maryborough, Kingaroy and Yarraman principally affected.