

**INQUIRY INTO ETSA UTILITIES'
NETWORK PERFORMANCE
AND CUSTOMER RESPONSE
JANUARY 2006**

**- FINAL REPORT -
*EXECUTIVE SUMMARY***

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ELECTRICITY

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EXECUTIVE SUMMARY

Between 19 and 22 January 2006, South Australia experienced a heatwave, with the maximum temperature in Adelaide exceeding 40° C on each of those days. ETSA Utilities' electricity distribution network was affected by the heatwave, with significant impacts on customers. As a result, the Minister for Energy referred an Inquiry to the Commission under Part 7 of the Essential Services Commission Act 2002. The Inquiry asked the Commission to investigate the reliability and customer service performance of ETSA Utilities during the heatwave. This Inquiry Report sets out the Commission's findings and recommendations in response to the Terms of Reference for the Inquiry.

As required by the Terms of Reference, the Commission has undertaken investigations and made conclusions and recommendations in relation to certain matters considered critical to ETSA Utilities' heatwave performance. Those conclusions and recommendations, summarised below, relate to the performance of ETSA Utilities before and during the heatwave, and appropriate measures that should be put in place to ensure that an improved standard of service to customers is achieved for future extreme weather events.

The Commission will require ETSA Utilities (pursuant to clause 15(1)(b) of its electricity distribution licence) to provide the Commission with a report by 30 November 2006, addressing separately each of the Commission's conclusions and recommendations.

The Commission will also develop and implement an audit program (in addition to audit work already being undertaken on ETSA Utilities' reporting systems – including the Guaranteed Service Level Payment system) to obtain assurance that ETSA Utilities' systems and processes for dealing with extreme weather events are improved.

Finally, the Commission will embark on a consultative process under the Essential Services Commission Act 2002, with a view to amending the Electricity Distribution Code in a number of important areas where the need for change has been identified through this Inquiry process.

The work of the Commission during the Inquiry has been informed by material received from ETSA Utilities, the Commission's technical consultant (PB Associates), other expert sources (such as the Electricity Supply Industry Planning Council, the Technical Regulator and the Bureau of Meteorology) and members of the South Australian public.

The impacts of the heatwave on the network and customers

Generally, heat-related distribution network problems arise from prolonged (rather than short-term) periods of high temperatures and increasing electricity demand. In South Australia, this is largely due to the use of air-conditioning, leading to overloading of network equipment such as transformers. On 20 January, the ETSA Utilities' network experienced a record peak demand of 2,633 MW.

There were about 96,600 interruptions on ETSA Utilities' network (which has a customer base of around 760,000) over the period 19 to 22 January, of which about 87% were associated



with interruptions on the high voltage network. High voltage interruptions were addressed relatively quickly (an average supply restoration time of 90 minutes). However, low voltage network interruptions, which occurred mostly in the Metropolitan area, were of much longer duration (an average restoration time of 7 hours, with about 560 customers being without supply for 24 hours or more). Response times of such duration are, in the Commission's view, unsatisfactory.

The Commission has found that the problems of most concern during the heatwave were due to the low voltage interruptions.

As required by the regulatory regime imposed by the Commission, ETSA Utilities must make Guaranteed Service Level payments to customers affected by interruptions of duration greater than 12 hours. To date, payments arising from the heatwave total about \$535,360 to over 4,000 South Australians. In addition, ETSA Utilities expects to make compensation payments of some \$600,000 to customers who suffered a loss due to extended power outages.

These customer payments, which total over \$1 million to date, represent a significant financial penalty to ETSA Utilities in relation to its performance during the heatwave – exceeding the amount of any penalty that could be sought by the Commission from a Court were it to seek to prosecute ETSA Utilities in relation to that performance.

Customers affected by outages during the heatwave also experienced difficulties with the timeliness and quality of information from ETSA Utilities concerning expected restoration times. The call rate to the faults and emergencies line of ETSA Utilities' call centre was above 15,000 on each of 21 and 22 January, with average wait times to talk to an operator of about 12 minutes.

Such wait times are unsatisfactory. Further, while the calls of many customers were dealt with by the automated Interactive Voice Recognition system, the information provided was often of poor quality, leading to increased frustration for customers.

ETSA Utilities' planning and preparations

ETSA Utilities has in place a wide range of general planning and preparatory measures that aim to ensure that the network can withstand heatwave conditions and that supply interruptions during such events can be dealt with effectively. These include planning approaches to appropriately "size" the high voltage and low voltage networks for peak summer demands, and documented emergency response procedures. The Commission observes that ETSA Utilities' planning processes have been made more difficult as a result of the proliferation of air conditioners in South Australia.

Specific summer preparatory measures utilised by ETSA Utilities include a program of low voltage transformer upgrades and load balancing in areas of potential concern, and ensuring that adequate resources (e.g. low voltage transformer and fuse spares) have been stockpiled.

Having reviewed ETSA Utilities' preparations for the heatwave, the Commission has found that those preparations were generally appropriate. Specific preparation by ETSA Utilities for

the heatwave was undertaken in accordance with its documented emergency response procedures.

The Commission has also found that ETSA Utilities' low voltage transformer program was (and remains) generally appropriate, although it should ensure that upgrades and replacements are completed prior to the start of peak demand periods.

There are two areas, however, in which the preparations were not appropriate. These two areas were, in the Commission's view, fundamental factors leading to the particular problems experienced by ETSA Utilities and customers as a result of the heatwave.

The first is the reported lack of staff availability during the heatwave; the second is ETSA Utilities' lack of appropriate integration of weather forecasting into its preparations.

There is a close link between the two as, if ETSA Utilities had better processes for utilising weather forecasts in its preparations, then it would have had more opportunities to ensure that appropriate staffing arrangements were in place.

The Commission has had regard to ETSA Utilities' submission that its preparations would have been different in nature and extent if the weather forecasts provided by the Bureau of Meteorology had proved more accurate. The Commission does not accept that submission and has reached the conclusion that ETSA Utilities should adopt a more sophisticated, proactive approach to the interpretation of, and organisational response to, weather forecasts in preparation for extreme weather events.

Commission's Recommendations: Planning and Preparations

In relation to ETSA Utilities' overall network planning and preparation, the Commission recommends that ETSA Utilities should have regard to at least the following matters in on-going reviews of processes:

- ***monitoring "good practice" developments in network planning, in particular to ensure that its planning basis adequately takes account of very hot weather conditions;***
- ***ensuring that the low voltage network load information that it obtains from receiving copy Certificates of Compliance, particularly in relation to the installation or upgrades of air-conditioning units, is appropriately used in network planning;***
- ***ensuring that the After Diversity Maximum Demand value (the maximum demand for an area after considering the diversification of peak loads which occur at different times) used in the planning of new subdivisions is adequate for the expected current demand and reasonable future growth;***
- ***allocating necessary resources to ensure that its pre-summer preparatory work, including necessary low voltage transformer upgrades, is completed prior to 31 December each year, ahead of likely times of peak demand; and***



- *completing and fully implementing the Outage Management System and network connectivity model by the end of calendar year 2006.*

In relation to ETSA Utilities' use of weather forecast data, the Commission recommends that ETSA Utilities consider at least the following matters:

- *the development of an internal definition of extreme weather events for which ETSA Utilities should be alert and responsive;*
- *the incorporation of appropriate error margins into weather forecasts used for extreme weather event planning purposes;*
- *the feasibility of adopting commercial weather forecasting arrangements to provide data that is tailored to its needs to assist in planning for extreme weather events; and*
- *the need for active engagement with the Bureau of Meteorology's Duty Forecaster on a regular basis during extreme weather events.*

ETSA Utilities' organisational response during the heatwave

ETSA Utilities' organisational response problems during the heatwave suggest inadequacies in the documented emergency response procedures of ETSA Utilities.

This Inquiry has revealed problems with the manner in which ETSA Utilities managed outstanding low voltage fault restoration jobs during the heatwave. This may have been due partly to inadequate information management relating to such faults and the fact that staff at regional depots, rather than at the centralised Network Operations Centre, were responsible for management of low voltage jobs. As a consequence of this decentralised approach, the extent of problems on the low voltage network was not recognised in time to rectify those problems in an efficient manner.

During the heatwave, ETSA Utilities did not have sufficient crews available in the Metropolitan area to satisfactorily address the outstanding low voltage jobs, and experienced difficulty in calling line and substation staff back to work outside normal business hours.

While the Commission has made a number of recommendations in this area, it acknowledges that ETSA Utilities has advised that it will adopt various initiatives to address the problems found during the heatwave. These include:

- ▲ providing wider dissemination of "Emergency Response Level" Procedures to all relevant operational personnel and issuing ETSA Utilities-wide alerts to forewarn relevant personnel of forecast emergency conditions;
- ▲ developing new arrangements to maximise the number of personnel likely to make themselves available out of hours for extreme weather events;
- ▲ centralising procedures for sorting, managing and dispatching customer outage notifications in the Network Operations Centre; and

- ▲ implementing a Maximum Restoration Time Policy to include an outage time component which prioritises customers who face prolonged outages, including single customer outages and outages affecting small groups of customers to ensure that all customers are reconnected within an acceptable time.

Commission's Recommendations: Operational Response

The information available to the Commission suggests that there are opportunities for improvement in ETSA Utilities' operational response processes. The Commission recommends that ETSA Utilities give consideration to the following measures for extreme and/or emergency events:

- *revising its internal processes and procedures for the management and tracking of low voltage network faults by retaining central control for this function;*
- *defining a formal emergency risk management role, with the view to appointing a risk manager to the emergency response team;*
- *exploring the need for non-operational staff (e.g., office-based staff) to be part of the response team during emergency conditions, to ensure that ongoing business culture development includes an emphasis on the "need to respond" during such conditions;*
- *clarifying the internal responsibility for high-level decisions regarding the priorities for deployment of field resources; and*
- *considering the use of qualified contractors to supplement the internal resources of ETSA Utilities in tackling widespread low voltage outages.*

ETSA Utilities' management of information during the heatwave

Efficient and timely management of network and customer information by ETSA Utilities during extreme operating conditions will assist it to respond quickly to outages, and to ensure that customers are given reliable information about the likely length of outages. The customer call centre is very important in this respect. The heatwave revealed deficiencies in the information communications systems of ETSA Utilities, with both the timeliness and quality of responses to customers affected by these deficiencies.

The Commission has concluded that the devolution of low voltage outage management to the depots contributed to the information flow difficulties during the heatwave and, as the number of low voltage outages escalated, the updating of the Interactive Voice Recognition system to reflect the status of restoration activities in the field became less timely.

The Commission notes that improvements to the call centre were implemented after the major storms in August 2005. In particular, ETSA Utilities advised that it had addressed the problems it experienced at that time with updating the Interactive Voice Recognition system



with information from field staff. Disappointingly, this issue was again a contributor to the poor call centre performance during the heatwave.

Perhaps the key conclusion made by the Commission from the point of view of poor customer service, and which may be identified as the key contributor to customer frustration, is the inadequacy of ETSA Utilities' information management during the heatwave.

The shortcoming of most concern is the failure to centralise and disseminate information relating to the existence or restoration of outages on the low voltage network. This failure had both upstream and downstream impacts. The lack of information on the status of low voltage outages meant that the Network Operations Centre was not fully aware of the extent of issues on the network. This led in turn to scheduling of jobs not being as efficient as possible, compounding the dilemmas in the field. On the downstream side, the lack of information meant that customers who did get through to the call centre were not given accurate and/or up-to-date information on the existence of, or likely duration of, outages which they were experiencing.

While the Commission has made a number of recommendations in this area, it acknowledges that ETSA Utilities has advised that it will adopt a number of initiatives to address the problems found during the heatwave. These involve improving its call handling capability through:

- ▲ the establishment of a 50 seat Keswick (South Australia) Overflow Call Centre in the case of major/extreme events and the transferring of calls directly to that Overflow Call Centre once staff are available;
- ▲ updating the Interactive Voice Recognition messaging; and
- ▲ updating the Operational Contingency Plan.

Commission's Recommendations: Information Management

The Commission recommends that ETSA Utilities consider the adoption and implementation of a more integrated communications strategy (during extreme weather events involving extensive outages), which encompasses the following matters:

- *detailed and reliable information on expected restoration times updated to the IVR system on a regular basis;*
- *regular updates to key media outlets during extreme weather events, including access to ETSA Utilities' personnel, rather than assuming that media staff will have the understanding and take the time to interpret website information (at least initially);*
- *maintaining reliable, accurate and timely information on the ETSA Utilities' website;*

- *generating information (for internal purposes) on call centre overload events (this information would also be required to be incorporated into periodic performance reporting to the Commission); and*
- *appointment of depot liaison officers to the emergency management team.*

The Commission also recommends that ETSA Utilities complete the implementation of the Outage Management System and connectivity model by the end of 2006.

ETSA Utilities' compliance with its regulatory obligations

The Inquiry Terms of Reference require the Commission to consider ETSA Utilities' compliance with its regulatory obligations during the heatwave and to make recommendations with regard to any changes that could be made to the regulatory framework to better protect South Australian consumer interests, including appropriate incentives and penalties.

The Commission has reviewed the extent to which ETSA Utilities meets a standard of good electricity industry practice in its management of extreme weather events such as the heatwave. The Commission has found that ETSA Utilities meets the good electricity industry practice requirements in the areas of network management and resource management, but that there is some doubt that ETSA Utilities' performance during the heatwave was consistent with a good electricity industry practice standard in the area of information management.

The Commission has also found that Guaranteed Service Level payments by ETSA Utilities to customers associated with lengthy outages during the heatwave were not all made during the three-month period following the event as required by the regulatory regime.

While the heatwave has revealed certain inadequacies in the manner in which ETSA Utilities has maintained appropriate levels of reliability and customer service performance during extreme weather events, the Commission does not believe that this suggests the need for major changes to the current framework of network reliability and customer service standards for ETSA Utilities. The framework provides appropriate incentives to ensure that ETSA Utilities is motivated to redress poor performance.

On the basis of the information before the Inquiry, the Commission has reached the following conclusions with respect to regulatory compliance:

- ▲ In failing to make all of the required outage duration Guaranteed Service Level payments to customers entitled to receive them within the prescribed three-month period, ETSA Utilities has, on the facts before the Inquiry, failed to comply with the requirements of the Electricity Distribution Code. As a result, it also failed to comply with the requirements of clause 6(1)(d) of its electricity distribution licence. The Commission has reached the conclusion that the appropriate means of dealing with this matter is through a comprehensive audit of ETSA Utilities' Guaranteed Service Level payment systems and processes, which is currently in progress.



- ▲ ETSA Utilities met good electricity industry practice in network management and resource management, although both ETSA Utilities and the Commission have identified opportunities for improvement in those areas.
- ▲ There is some doubt that ETSA Utilities' information management performance was consistent with a good electricity industry practice standard at the time of the heatwave.
- ▲ While the Guaranteed Service Level payment scheme provides significant incentive to ETSA Utilities to change its supply restoration practices to reduce the level of payments, it is appropriate that a further band be added to the scheme to provide an additional financial incentive for ETSA Utilities to ensure that the restoration times of the heatwave are not repeated; whether in future extreme weather events or in general restoration practices.
- ▲ Consideration will be given to establishing additional telephone responsiveness standards, such as an additional annual standard relating to the average wait time for callers wishing to talk to an operator.
- ▲ ETSA Utilities will be required to report on the number of overload calls (that is, customer calls not able to get through to the call centre), commencing no later than the September 2006 regulatory reporting quarter.
- ▲ For reasons set out in detail in section 11.5 of this Inquiry Report, which include acknowledgment of the more than \$1 million in financial penalties already incurred by ETSA Utilities, as well as the lack of intent on the part of ETSA Utilities to perform poorly during the heatwave, the Commission will not take legal action against ETSA Utilities in relation to the events which occurred during the heatwave. The Commission will, however, implement a comprehensive audit program in relation to areas of concern identified through this Inquiry (noting that, as identified above, the Commission is already auditing ETSA Utilities' Guaranteed Service Level payment systems and processes)

Commission's Recommendations: Regulatory Obligations

Consideration will be given (through a consultative process under the Essential Services Commission Act 2002) to amending the Electricity Distribution Code to include:

- *an additional threshold for outage duration Guaranteed Service Level payments, such that a payment of \$320 will be made to any customer affected by an outage of greater than 24 hours duration (the current maximum is \$160 for an outage of more than 18 hours' duration);*
- *additional telephone responsiveness standards, such as an additional annual standard relating to the average wait time for callers wishing to talk to an operator;*
- *minimum levels of service to be met by ETSA Utilities for the call centre Interactive Voice Recognition system, to be applied during extreme weather events;*

a requirement to report on the number of overload calls (that is, customer calls not able to get through to the call centre), commencing no later than the September 2006 regulatory reporting quarter.

General observations

To give some context to its conclusions and recommendations, the Commission makes the following general observations.

First, while there can be no doubt that the period from 19 to 22 January 2006 was hot, it is generally acknowledged that summers in South Australia are hot. The occurrence of a heatwave cannot, therefore, be regarded as a highly unusual event. It follows that it is reasonable for the community to have an expectation that the South Australian electricity network will be designed and operated so as to generally cope with such conditions.

Secondly, the electricity supply system is fundamental to the economic and social infrastructure of a modern society. At the same time, however, it is important to realise that electricity distribution systems are not perfect and, moreover, that there are necessary trade-offs between the level of service that is provided and the prices that customers pay.

It may be technically possible to design a network that continues to operate without failures no matter what the level of demand for electricity might be from time to time. Building, operating and maintaining such a network would, however, be extremely costly and would require customers to pay prices many times higher than they do now if such a standard was required of ETSA Utilities' distribution network.

Nevertheless, it is important that ETSA Utilities provides the best level of service for the revenue it is entitled to earn in accordance with the Commission's Electricity Distribution Price Determination.

Thirdly, it should not be inferred from the fact that the Minister referred an Inquiry to the Commission that ETSA Utilities was itself satisfied with its performance during the heatwave, nor should it be thought that it has done nothing to address community concerns since the heatwave. While this Inquiry Report does identify areas of concerns in ETSA Utilities' systems and processes, the Commission recognises that ETSA Utilities has undertaken significant work and developed important new programs aimed at improving its performance since the heatwave occurred.

Fourthly, the Commission observes that neither it, as the economic regulator for the electricity distribution business, nor the Energy Industry Ombudsman, have received an unusual level of contacts from customers concerning the events which occurred during the heatwave. The Commission understands, however, that ETSA Utilities did receive a number of contacts from customers in the period following the heatwave and put significant resources into responding to customers and seeking to address their concerns.



Finally, while there can be no doubt that the January heatwave and the resultant impacts on the distribution network had a significant effect on the lives of some South Australians during the heatwave of 19 to 22 January, recent heatwaves and associated blackouts elsewhere in the world, such as the United States of America and Europe have emphasised that this is not solely a South Australian phenomenon.

Experiences such as those show that while, as demonstrated in this Inquiry Report, there are concerns over some of the actions of ETSA Utilities in relation to its performance during the heatwave, care needs to be taken not to assess that performance without regard to events, practices and outcomes elsewhere.