Determination 59 – April 2007

This is a determination of the Energy & Water Ombudsman NSW under Clause 6 of the Constitution of the Energy & Water Ombudsman NSW scheme.

Introduction

This determination relates to a claim to from a customer for compensation for $3229.65 for damage to multiple items of electrical equipment - Mr C.

By way of introduction I wish to note that during its eight years of operation, EWON has dealt with a large number of complaints from customers in relation to claims for damage. Overall, this has proved to be a complex and difficult area.

There appears to be no certainty for electricity suppliers or customers in relation to responsibility/liability for damage caused by electricity incidents. Although NSW electricity providers generally incorporate into their customer contracts a position of no responsibility/liability for damage caused by electricity incidents, in practice they pay many claims by customers on an ex gratia, without prejudice basis.

Electricity providers have adopted different approaches to customer claims so that there is no consistency in response across NSW utilities.

It appears that insurance companies are increasingly excluding 'electrical' incidents from their coverage, and directing policy holders back to their electricity provider for redress.

As a result of these factors, the position regarding claims for customers is not clear.

It is worth noting that the Essential Services Commission of Victoria has issued a guideline about compensation of customers. This guideline has had the effect of significantly reducing the need for the Energy & Water Ombudsman (Victoria) to be involved in customer claims for compensation.

In my view there does not appear to be any sound reason for an inconsistent approach by electricity providers in NSW to customer claims for damage. We cannot see any competitive advantage to a different approach by companies, and it does not seem equitable for customers to be treated differently in relation to claims depending on the distribution area in which they live. We have called for discussion of these issues by

relevant stakeholders, including electricity distributors, regulatory bodies, and consumer groups.

In the absence of any clear guidelines for customer claims in NSW, it has been left to my office to investigate claims that have been denied by distributors. My determination in individual matters does not create any precedent, but simply reflects an attempt to resolve each case in relation to its individual circumstances.

I believe that the development of standards for claims in NSW will benefit customers, their electricity providers, and the general community.

The Complaint

Mr C submitted a claim to his electricity provider on 22 August 2005 for $3768 for damage sustained to appliances following a variation to the electricity supply to his rented premises on the evening of 25 July 2005.

In his *Claim Form* he stated that he first noticed this supply variation when he returned home and switched on the lights at approximately 8.30pm. The lights "appeared dim and flickering"; however, when he inspected the circuit board located in the downstairs area of the house, "all switches appeared normal."

When Mr C began preparing his meal using the stove at around 8.45pm, the lights had resumed their normal brightness but a friend who was present advised Mr C that there was smoke coming from the video recorder in the lounge room. Mr C immediately isolated the power to the stove and to the television and unplugged his appliances. He stated in his *Claim Form* that:

> "On inspection, it was found that the lights dimmed/flickered when the stove was switched on and off and that other electrical appliances in the house were no longer working."

The affected appliances included the video recorder and a microwave, telephone, dishwasher, refrigerator, an oven/griller display panel, a stereo and a spa bath pump. Mr C stated that he decided not to "risk the potential for a house fire" and decided to resume cooking his meal on the barbeque.

Mr C stated on his *Claim Form* that an electrician was called at 7.30am the next morning to investigate the supply problem. He provided detailed information about the electrician's check on the installation, noting that the electrician inspected the circuit board and "indicated there was no fault but rather that it must be related to the power line and/or meter board feeding to the house". Mr C added that when the electrician's inspection of the meter board "showed no fault…[the electrician] then contacted The provider as the fault was found to be from a dislodged/burnt out cable feeding from an The provider power line."

In describing this incident for the provider on his *Claim Form*, Mr C stated that:

> "Neutral wire on a pole metering point burnt off. This pole supplied power to the house via a metering switchboard. Check found that the internal final sub circuits to run at 380 volts instead of 240 volts. This increased voltage caused damage to most of the electrical appliances in the home."

Mr C provided extensive documentation in support of his claim including copies of the attending licensed electrician's reports; repairer's reports for the damaged items; and receipts for those items that were irreparable and which Mr C had already replaced.

In his report dated 30 July 2005, Mr C's electrical contractor stated that his preliminary investigation established that some internal sub-circuit voltages were 380 volts instead of the nominal value of 240 volts. Further tests revealed a burnt off neutral connection on the top of the distribution pole [number] which supports the metering switchboard. The electrical contractor reported that:

> "with the service neutral disconnected, the supply transformer, which is located about one kilometre from the house, was unable to regulate the power supply to 240V per phase."

In the electrical contractor's assessment, this over voltage problem resulted in "major damage" to all the internal appliances that were plugged in at the time.

As the electrical contractor was not accredited to carry out service work on the network, he contacted the provider to arrange for them to carry out the necessary work. An authorised electrician attended the property at approximately 9am and repaired the faulty connection without isolating the service line at its source of supply by carrying out "live line" work. In a subsequent discussion with EWON on 12 October 2005, Mr C stated that the provider did not charge him for the live line repair work they completed because the problem was with their own infrastructure.

Mr C submitted a second report from the same electrical contractor dated 20 August 2005 with his *Claim Form*. This report reiterates much of the information in the earlier report. However, the electrical contractor also notes that he had "checked three appliances that are the property of the house owner, namely the Wall Oven, Dishwasher and Spa and found all three needed either replacing or major repairs." His inspection of these appliances indicated that the electronic control units for each one were all burnt out, as were the pump motors for the spa and the dishwasher.

The provider first wrote to Mr C on 25 August 2005 acknowledging receipt of his claim for compensation and advising that this was being investigated. On 7 September 2005, the provider wrote to Mr C again, declining to pay the claim on the basis that:

> "there is no record of a supply event to the section of the network supplying your premises on or about 25 July 2005."

Mr C contacted EWON on 15 September 2005 to request a review of his provider's decision. He subsequently wrote to EWON on 18 September 2005 attaching copies of repair reports and receipts for the damaged items he had already replaced. He advised

that his landlord had replaced the dishwasher, had paid for the repair to the wall oven control panel and was also arranging for a replacement pump for the spa. He also informed EWON that he had replaced his microwave oven ($429) and the telephone ($190) but had not yet replaced his stereo system ($1700) or the video ($299). He advised that damage to his refrigerator was repaired on 29 July 2005 for $441.65 following the incident on 25 July 2005. Based on the above, the total compensation claimed by Mr C is $3229.65, including $60 for the repairer's inspection reports and $110 for the licensed electrician's fee.

In his letter to EWON, Mr C stated that he contacted his real estate agent who arranged for an electrical contractor to attend the premises at approximately 8am on 26 July 2005. He reiterated the information he had provided about the electrician's inspection in his The provider *Claim Form* but also noted that:

> "On further inspection of the power pole external to the house, the electrician identified that a neutral wire had been burnt off from the pole. The electrician indicated that he was not in a position to repair this neutral wire because the power supply, which fed from a transformer, needed to be isolated by an authorised technician.
>
> An authorised electrician arrived at around 9am and repaired the faulty wire. This was undertaken 'live' and did not require the power supply to be isolated.... The property is a rental property and the faulty neutral wire is owned by the provider and not the landlord."

Mr C also informed EWON that the verbal advice he received from the Office of Fair Trading's Tenants Advice and Advocacy Service indicated that because an authorised technician was required to repair the faulty line, "the landlord is not deemed responsible for what had occurred." His letter also referred to "the provider's charter" which, he noted, includes an undertaking to provide a regulated power supply between the voltages of 216 to 264 volts. Despite this, Mr C noted that:

> "the report from the electrician indicates the voltage exceeded the neutral supply voltage range and a failure on the part of the provider to maintain their network."

On 30 January 2006 Mr C wrote to EWON attaching several photographs of the service mains connection to the private/service pole located on his rented property. Mr C provided summary information on the incident, including the following comments:

> "The provider's electricity network operation standards July 2004 provides for an undertaking to supply a regulated power supply between the voltage of 216 to 264 volts.
>
> NSW Service and Installation Rules states that the point of attachment for the neutral wire is part of the Energy Australia network.
>
> The provider repaired the faulty neutral connection and did not invoice the tenant or landlord for works completed."

In a subsequent discussion with EWON, Mr C advised that the property's managing agents had confirmed that approximately two years prior to the incident on 25 July 2005, they had had the property's installation checked by a licensed electrician and this had not identified any problems. Mr C informed EWON he was unsure of the exact age of the property but said this was "relatively new", approximately 15 years old.

The provider's response

The provider sent Mr C a *Claim Form* on 26 July 2005 following his telephone call on that date, and wrote to him on 25 August 2005 to acknowledge receipt of the completed form.

In their claim determination letter dated 7 September 2005, the provider informed Mr C that they had no record of a supply event impacting the section of the network supplying his premises on or about 25 July 2005. Rather, the provider advised that the claim "relates to a failure or defect of equipment that is part of the electrical circuit within your installation and not part of the network." The provider noted that they do not accept liability for loss and damage of equipment in these circumstances and suggested to Mr C that he might wish to contact his insurer.

In their *Network Claim Investigation Report* dated 27 September 2005, the provider advised EWON that Mr C's rented premises is supplied electricity via Distribution Substation [number] and the high voltage feeder [number] out of the [name] Zone Substation.

The provider stated that their records did not reveal any variation in the supply to Mr C's premises. Rather, they advised that the claim related to a failure of, or defects in, equipment that is part of the electrical circuit within the customer's installation, and not part of the network:

> "attending field staff found a neutral fault on private assets – that is, not part of the network or service connection."

On 17 November 2005, EWON wrote to the provider requesting a copy of the Emergency Services Officer's (EMSO) report on the incident, including further information about the nature of the fault involving the service neutral and details of the rectification work the provider carried out. In response, the provider informed EWON that:

> "field staff attended the claimant's premises and determined that there was a failed neutral connection. This failed connection was part of the private installation and NOT part of the network or service connection. There is no reporting mechanism for faults and/or repairs external to the network."

The provider also stated that Mr C's electrical contractor's report "recognises the fact that the fault was located on a private pole." Furthermore, "the fact that no charge was made to carry out the repair is not an admission that the fault was on the supply

network. It is not uncommon in rural communities for the local staff to assist customers in this way."

In response to EWON's request for additional information, the provider wrote to EWON again on 7 December 2005 reiterating that the claim determination was predicated on the fact that:

> "the claimed event occurred within the customer's installation (i.e. not an event on EA's network)."

On 17 March 2006 the provider informed EWON that their senior management was reviewing Mr C's claim in light of changes to their *Claims Handling Policy*. The provider wrote to EWON again on 4 April 2006 confirming that they stood by their decision to deny the claim.

EWON commissioned technical advice from an independent electrical engineer on 7 April 2006 and, following the provision of his report, we forwarded detailed information outlining the reasons for the engineer's conclusions to the provider on 1 August 2006. On 3 August 2006, in response to the summary of the technical report EWON had provided, the provider wrote to EWON stating their concern at EWON's "apparent rejection" of the independent engineer's acknowledgement that "The provider's position is supported by the Rules [*NSW Service and Installation Rules* 1999]." The provider also requested that EWON consider closing the investigation on the basis of the expert's "technical findings", rather than "continuing the investigation on the basis of the independent engineer's "advice in relation to 'ethical and logical' interpretation of the Rules." EWON forwarded additional information from the independent engineer to the provider on 9 February 2007 however the provider's review of this information with EWON's engineer did not provide a basis for a negotiated resolution of Mr C's complaint.

EWON's Investigation

In the course of our investigation of this matter we considered in detail the information provided by the provider and Mr C. We examined the relevant provisions in the various editions of the *NSW Service and Installation Rules* and we commissioned a report from an independent and experienced electrical engineer on the technical circumstances underpinning the incident that damaged multiple items of Mr C's electrical equipment and other hard-wired appliances at the property. In particular we sought the independent engineer's professional advice regarding responsibility for the maintenance and repair of the connection of the service neutral to the consumers mains at the point of attachment at the service pole and the likely impact of this failed neutral connection on the customer's installation and/or appliances. Details of the independent engineer's professional advice to EWON were shared with the provider.

Independent technical advice

In reporting to EWON the independent engineer provided a detailed response regarding the incident that damaged Mr C's appliances and other electrical fixtures in his rented premises on the evening of 25 July 2005.

The independent engineer discussed the circumstances of the incident with the licensed electrical contractor who was engaged by Mr C's real estate agent on 26 July 2005. The electrician confirmed that the point of failure was the actual connection between the service line neutral 'tail' and the consumers mains neutral 'tail'. Based on this information, the engineer noted that "apparently the connection was by means of a single "line tap" (a type of bolted connector commonly used for service and other aerial line connections)". He also commented that, "as he would have expected", the electrical contractor had observed that the 'tails' of both the service line neutral and the consumers mains neutral had been damaged by heat when the connection burned off. The electrician confirmed that the provider repaired the fault on 26 July 2005 by cutting out the heat-damaged section of service line tail and consumers mains tail, inserting a short length of insulated cable and reconnecting the neutral conductor using two insulated line clamps.

In reviewing the licensed electrician's information, the independent engineer states that the incident that occurred "is ample testimony to the impact or effects of a failed (open-circuit) service neutral connection, in that a voltage of the order of 380 volts was measured on final subcircuits between phase and neutral conductors." He notes that this open-circuit neutral supply situation resulted in overvoltage that was "sustained for several minutes if not hours, commencing at the time the neutral connection failed, and maintained until Mr C turned off some or all of the circuit breakers on the switchboard after he came home that evening." He provides detailed information about the supply implications when a neutral is broken and states this results in a situation where the neutral point of the customer's three-phase system effectively 'floats'. When this occurs, "no longer is it tied down to earth potential by the low overall neutral-earth impedance, and it can rise well above the voltage level of the general mass of earth. The only constant then is the phase-to-phase voltage of 415 volts which appears across any two phases, with the individual phase loads effectively in series." Furthermore,

> "under these circumstances, the individual phase-to-earth voltages in an installation will depend on the individual phase loads, generally in an inverse proportional relationship, with the voltage of the most lightly-loaded phases rising substantially above nominal, while the voltage of the more heavily loaded phase(s) drops to well below nominal. Moreover, the earth fault protection provided by overcurrent devices is at the same time rendered substantially ineffective."

The independent engineer states that this is consistent with the circumstances Mr C experienced when he arrived home on the evening of 25 July 2005:

> "The lights were dim, indicating abnormally low voltage on the phase concerned, but varied (as the load on that and other phases varied as items such as refrigerators switched on and off). At the same time, the voltage on at least one other phase was abnormally high, giving rise to destructive damage (evidenced by smoke from the VCR) to some appliances, and the measurement the next morning of 380 volts on (at least) one phase."

His analysis also highlights that the implications of a 'broken' service neutral are not confined to the risk of electronic appliance damage via overvoltage supply conditions.

Rather, the concomitant "substantial rise in voltage of the customer's earthing system, as the neutral 'floats' while still connected to the local earthing system, will impress a possibly dangerous voltage on the metal housings of appliances, relative to 'true' earth, such as may be found on a water pipe or telephone cable which is earthed remotely."

The independent engineer has emphasised that it is because of the dangers inherent in a broken service neutral connection that industry best practice has focussed on attempting to ensure the integrity of this connection by using more than a single line tap or single clamp. He has advised that best practice for this critically important connection "could be stated as taking extra precautions – over and above routine means of making robust connections between conductors – to ensure the integrity of the service neutral." In line with this he suggests that it has been common although not universal practice in the distribution industry for many years to use double connectors for this type of neutral connection, for the precise purpose of minimising the possibility of a faulty connection causing an open circuit neutral:

> "As bolted line taps or parallel-groove clamps are the most common means of connecting service lines at consumers terminals, the extra precautions usually taken consist of either –
> - use of an additional (second) line tap, or
> - use of a clamp with an additional bolt (compared to that used for active/phase connections)."

The engineer states that the provider (then as a County Council) "introduced this practice in the 1970s when it changed to the Common MEN system."
The independent engineer has provided detailed information about the electrical installation at the property and the provider's low voltage network arrangements.

In reviewing the information about the infrastructure provided by Mr C's electrical contractor and the photographs of the installation forwarded by Mr C, the engineer has indicated that the provider has an aerial low voltage distribution network supplying Mr C's premises that is supplied from a pole-mounted substation near a river, about one kilometre away. This low voltage network terminates on distribution pole [number], which is also located near Mr C's premises. The report states that:

> "The insulated aerial conductors between pole [number] and the customer's pole [number] are a service line and provide the necessary connection to the LV distribution network. The tails of the phase conductors of the service line are terminated in the service fuse fittings at the head of the customer's pole. The tails of the phase conductors of the consumers mains, installed by the customer's electrician and which are part of the customer's electrical installation, are terminated in the 'load' side of the service fuse fittings. Before the incident on 25 July 2005, the service neutral 'tail' was connected to the consumers mains neutral tail with a line tap or clamp; following repairs, the connection is by means of two insulated bolted clamps and a short length of cable."

The engineer also notes that the failure occurred at the "actual electrical and physical connection" between the service and the consumers mains and that the customer's pole [number], constitutes the point of attachment of the overhead service line.

In regard to the delineation of the respective responsibilities of the provider and the customer, the engineer states that:

> "In all cases, the ***service line*** is part of the provider's network, and is the responsibility of the provider. As might often be the case since the late 1990s following the introduction of contestability of certain types of connection works, even if the work is carried out by an ***accredited service provider***, the asset is owned by the provider and is constructed to its standards and subject to its inspection regime under the approved 'accreditation of service providers' scheme. The customer has to pay for this work, but the asset is part of the provider's network. In this case, it is believed that the provider installed the overhead service itself, presumably at the original customer's cost.
>
> The ***consumers mains***, on the other hand, are part of the customer's electrical installation, and are the property and the responsibility of the customer. Consumers mains are installed by the customer's electrician and is not "contestable works"."

The independent engineer reviewed the different editions of the *NSW Service and Installation Rules*, which were first published in 1996, given the provider's view that the problem with the failed connection involved a "neutral fault on private assets" which is "not part of the provider's network or service connection." Firstly, while he notes that the 1999 edition of the *Rules* was current at the time of the incident on 25 July 2005, he states that these *Rules* should not be applied retrospectively. He also notes that it has always been the case that while a licensed electrician can install the consumers mains, this contractor is not accredited or authorised to do service work and is therefore unable to make the connection between the consumers mains and the service line. Rather, he states that it is "invariably the case" that the actual connection "is provided, or made, either by the electricity distributor (in this case the provider) or by an accredited service provider [since the introduction of the accreditation scheme in 1996], to the standards set by the electricity distributor and subject to its inspection regime under the accreditation scheme".

The engineer also notes that the earlier 1996 edition of the *Rules*, did not address the issue of responsibility for the consumers terminals "at all". He states that "this is consistent with industry practice up to that time, where the electricity distributor was responsible for installation and connection of services (even though in rural situations, the customer was generally required to pay for them)."

He further notes that:

> "Thus in 1996, common industry practice was that the electricity distributor installed and connected the service, thus making the connection at the consumers terminals. Where a service provider carried out the work, it did so at the direction of the electricity distributor, and in general the actual connection at

the consumers terminals (or point of supply) was made by the electricity distributor."

In concluding that it is not reasonable for the provider to deny Mr C's claim on the basis that the customer is responsible for the actual connection of the service neutral and the consumers terminals, the independent engineer has summarised that:

"1. the 1999 edition of the *NSW Service & Installation Rules* should not be applied retrospectively

2. earlier (and then current) editions of the *Rules* did not allocate responsibility for consumers terminals (or point of supply), consistent with industry practice c.1996

3. the connection at the consumers terminals (or point of supply) in Mr C's case was made by the provider or its predecessor or its agent."

In addition, the engineer has indicated that the overvoltage that occurred in the circumstances of this matter was sustained and, "in the terms of the provider's *Electricity Network Operation Standards* (ENOS), it lasted for more than one minute" and was quite likely of several hours duration. He also notes that electronic equipment or appliances containing electronic devices, especially digital equipment and microprocessors, remain highly susceptible to overvoltages. He considers that the supply incident that damaged Mr C's appliances and which involved "abnormally high voltage supplied for at least a number of minutes and probably some hours, can be regarded as a sustained or steady-state condition". In these circumstances, he concludes that "it is immaterial whether the event lasted for 10 seconds, 20 minutes or an hour" as Mr C's microwave oven, cordless telephone, stereo, and his video player/recorder are all examples of modern consumer electronics using microprocessor technology, and therefore were in all probability very susceptible to overvoltage. Also, he states that it is likely that a modern refrigerator, a dishwasher, and the controls of a wall oven also contain microprocessor-based electronics, and thus are similarly susceptible. He notes further that:

> "All of these appliances, at least while in quiescent mode (plugged in and switched on but not necessarily operating, say in stand-by mode) of course represent a very small electrical load, exacerbating the effect of the floating neutral. On the other hand, Mr C's spa pump probably contains no electronics. While consumer electrical devices such as motors are not as susceptible to voltage surges (transient overvoltages) as electronic equipment, they are susceptible to sustained overvoltage – which in this case may well have been as high as approx. 160% of nominal."

For the reasons outlined, the independent engineer concluded that the provider has responsibility for the failure of the service neutral connection with the consumers mains at Mr C's rented premises on 25 July 2005.

This failure created the open circuit situation that caused the failure of Mr C's appliances and other electrical fixtures in his rented premises.

Analysis

EWON's investigation considered the information obtained from all sources listed above. However, the information outlined below was considered to be particularly relevant in determining that it is reasonable for the provider to address Mr C's claim.

In attempting to resolve customers' complaints, EWON considers the relevant legislative and regulatory provisions, industry practice, and what is fair and reasonable in the circumstances of each case. The substantive issue of responsibility for the failed service neutral connection that created the open-circuit supply incident was reviewed within this framework. In particular, EWON's investigation has considered the varying, and in places, seemingly ambiguous information in the relevant provisions of different editions of the *NSW Service and Installation Rules*. The independent electrical engineer's information relating to industry best practice for the making of robust connections to ensure the integrity of the service neutral is also considered particularly pertinent, as is the fact that the available information indicates that the provider's predecessor appears to have made the connection which failed on 25 July 2005.

In the circumstances of this matter, there is agreement among all parties - (Mr C, the provider, the licensed electrician engaged by the property's managing agents and EWON's independent engineering consultant) - that an incident occurred on 25 July 2005 involving the failure of a service neutral connection at a service pole, which resulted in a significant overvoltage supply situation to the property's installation. EWON acknowledges the provider's advice in their letter to Mr C dated 25 August 2005 that "there is no record of a supply event to the section of the network supplying your premises". However, the independent technical advice received by EWON notes that a faulty neutral on a service main would not normally be recorded as a network fault.

The licensed electrician who was called out to rectify the supply problem reported that a voltage in the order of 380 volts was measured on the final sub circuits between phase and neutral conductors. The provider has not disputed that this was the case. It also seems that there is no dispute that there is an extremely strong nexus between the damage to Mr C's equipment and the open circuit supply situation created by the failure of the service neutral connection on the service pole where the provider's aerial service line terminates and is connected to the consumers mains. The provider has not disputed the conclusion of the independent engineer that the failure of Mr C's appliances is consistent with the sustained application of substantial over voltage as a result of the failed service neutral connection:

> "The magnitude of that overvoltage is not known precisely, but a voltage of 380 volts phase-to-neutral as measured the next morning (representing almost 160% of nominal) would certainly cause substantial damage to any of the appliances concerned."

The provider's *Network Claims Management Policy* states that the provider "will give consideration in appropriate circumstances to making a customer service payment for

damage to electronic or electrical equipment in the event of a voltage difference between Neutral and Earth."

However, the provider has informed Mr C and EWON that the confirmed incident, which they describe as "a neutral fault on private assets", resulted from the failure of a connection that is "not part of network or service connection". In their reports to EWON, the provider has consistently stated that "the claimed event occurred within the customer's own installation" and therefore the provider has no responsibility for the failed connection resulting in Mr C's loss.

For his part, Mr C has stated that the fact that the licensed electrician was not authorised to rectify the service neutral connection and that this work had to be completed by the provider and that they did so free of charge, indicates that the provider has responsibility for the maintenance of this bond or connection.

The issue of which party – the distributor or the customer – is specifically responsible for the maintenance and repair of the actual connection of the neutral supply conductor with the consumers mains, is the key consideration in this matter. As previously noted, central to this question is the information that is available from regulatory provisions and information regarding industry best practice.

EWON has examined the relevant provisions in the various editions of the *NSW Service and Installation Rules* (the *Rules*), relating to the distribution system and the consumers installation. The *Rules* were first published in 1996 with subsequent editions in 1999 and 2006. They are incorporated by reference in the *Code of Practice for Service and Installation Rules* and are the recognized industry code outlining requirements of electrical distributors when connecting a customer to the distribution system of New South Wales.

The provider has indicated that the provisions of the *NSW Service and Installation Rules 1999* support their position that the connection of the service neutral and the consumers mains that failed on 25 July 2005 forms part of the consumers installation and is not part of the network or service connection.

EWON has confirmed with the Department of Energy, Utilities and Sustainability (DEUS) that the provisions of the *Rules* should not be applied retrospectively. The 1999 edition of the *Rules*, effective from 1 June 1999, was not current when the provider's predecessor connected supply to the subject property in 1990. It seems inappropriate therefore to rely on the 1999 *Rules* in respect of an incident involving the failure of a service connection that was made by the distributor (or an agent of the distributor) well prior to 1999. Nevertheless, The provider, in denying Mr C's claim, have relied on the provisions of the 1999 *Rules* to determine that they have no responsibility for his losses, as they maintain the failure was within the premises' own electrical installation.

EWON notes that the 1999 edition of the *Rules* state at 1.4.4 that:

> "The customer shall ensure…installation and maintenance of the consumers installation which originates at and includes the consumers terminals."

The 1999 edition of the *Rules* also state at 1.1.6 that the consumer terminals "mean the point specified by the electricity distributor at which the distribution system or works is connected to the consumers installation." At 1.1.5 the 1999 *Rules* state that the consumers installation does not include "an electricity distribution system or service line, meter or apparatus being the property of an electricity distributor …used solely for the conveyance, measurement or control of electricity supplied to any land or premises." The available information indicates that the actual connection device that the provider's predecessor supplied and installed to connect the service neutral conductor and the consumers mains - a single "line tap" which EWON's independent electrical engineer has described as a type of bolted connector commonly used for service and other aerial line connections - might be considered to be part of the "apparatus" or equipment that is "the property of an electricity distributor." It seems that the only exception to this was where a consumer terminal box was supplied by the customer on the facia board. In this situation, the service cable was connected by the DNSP to the consumer terminal or service box, which was owned by the customer.

The latest edition of the *Rules*, published in October 2006, appear to confirm the above information as they state at 1.2.15 that the overhead conductors between the distribution system and the point of supply and referred to as 'the service', "comes under the ownership, control and maintenance of the electricity distributor as part of its network." The October 2006 *Rules* also state at 1.2.15 that:

> "The service does not include the bracket, mains connection box or other form of anchor at which the service is terminated, but includes the strain clamp at the POA and the connection device at the point of supply."

The "point of supply" in this latest edition of the *Rules* is defined as "the junction of an electricity distributor's conductors with consumer's mains." These clear references to the electricity distributor's responsibility for the "ownership, control and maintenance of the connection device" at the junction of the service conductors with the consumers mains appear to clarify the current situation regarding delineation of responsibility. However, EWON's review of the 2006 *Rules* indicates that there is still some ambiguity regarding this position as the *Rules* also state at 1.5.4 that "the customer will be responsible for the installation and maintenance of the electrical installation which originates at and includes the point of supply." EWON has discussed this apparent ambiguity with DEUS and we understand that these particular provisions will be reviewed. However, given the information above, and because we understand that the *Rules* do not apply retrospectively, additional information about the applicable service rules when the provider's predecessor connected this service in 1990, as well as information relating to industry best practice for making the service neutral connection, seems pertinent in providing guidance regarding where responsibility for the failed neutral connection on 25 July 2005 might reasonably lie.

EWON's independent engineer has advised that "earlier (and then current) editions of the *Rules* did not allocate responsibility for consumers terminals (or point of supply), consistent with industry practice around 1996." He has noted this because, in accordance with common industry practice, the connection between the service mains and the consumers mains "was invariably made by the distributor or its agent". He states further that it was not until the advent of contestability following the proclamation of the *Electricity Supply Act 1995* that an industry-wide accreditation

scheme was introduced for service providers to carry out service work. It also remains the case that the electricity distributor stipulates the method of connection - (for example, the type of fitting used for the connection) - and that this is made to the distributor's standards and under its inspection regime.

On this basis, the independent engineer has stated that the customer "certainly had no control over [this bond] or of the standards to which the failed neutral connection was made."

EWON acknowledges the independent technical advice that:

> "The tails of the phase conductors of the service line are terminated in the service fuse fittings at the head of the customer's pole. The tails of the phase conductors of the consumers mains, installed by the customer's electrician and which are part of the customer's electrical installation, are terminated in the 'load' side of the service fuse fittings."

EWON understands from the independent technical advice we have received that the service fuse fittings are part of the consumers mains and that, accordingly, for the phase conductors, the termination of the service cable is onto the consumers mains assets. Thus, in the case of a failure of a phase conductor into the service fuse, this is a 'grey' area of responsibility because although the DNSP (or their agent) makes the connection, this is onto consumers assets. However, in regard to the service neutral, the connection is either with line taps or insulated bolt clamps. These connectors are owned and maintained by the DNSP. Since the advent of contestability, "the customer may have to supply the connector, but ownership and maintenance rests with the DNSP". Indeed, it seems that "the connection between the service line and the consumers mains has always been owned by the electricity utility".

In reporting to EWON, the independent electrical engineer has emphasised that the "dangers inherent in a broken service neutral" is a fact that is "universally recognized in the electricity distribution industry." He has also indicated that industry best practice for this critically important neutral connection is predicated on taking "extra precautions" to ensure the integrity of the service neutral, via the use of an additional line tap or clamp bolt, as outlined earlier in this Determination. The independent engineer has advised that the information provided by Mr C's electrician confirms that "the neutral connection that had burned off used a single line tap only." While it appears that this methodology was not uncommon, EWON understands from the available information that the "extra precautions" increasingly adopted by electricity distributors from the 1970s onwards have constituted 'best practice' within the industry for many years. In light of this information, it is noteworthy that when the provider repaired the failed connection, they used two insulated line clamps, reflecting industry best practice as noted by the independent engineer.

The provider has indicated that the fact that they did not charge Mr C for the live line repair work necessary to restore his supply is not an admission that there was any problem with their network but, rather, a reflection of the fact that the provider often provides this service to rural customers. It is noteworthy that the provider did not advise Mr C of their position on responsibility for the failed neutral service connection at the time that this work was carried out although EWON acknowledges that field staff would generally not discuss issues such as this with customers. Nevertheless, it is also

understandable why Mr C formed the view at that time that the provider's failure to invoice him indicated an acceptance of responsibility for his damaged equipment.

The available information indicates that at the time the provider's predecessor connected supply to the subject premises in 1990, the device used to effect the service neutral connection formed part of the service and was under the distributor's control and management. EWON acknowledges that this connection appears to have remained intact for approximately 15 years prior to its failure on 25 July 2005. According to EWON's independent engineer, the silence of earlier rules and the 1996 *Rules* on the issue of responsibility for this connection is in line with industry practice prior to and around 1996 when the distributor supplied and installed this equipment as it was the only party authorised to make the connection. The complexity of this matter is compounded by the fact that the various editions of the *NSW Service and Installation Rules* from 1996 do not provide clarity regarding the delineation of responsibility for the actual connection of the service neutral conductor with the consumers mains, and the fact that these *Rules* should not be applied retrospectively.

It is also significant that there appears to be agreement within the distribution industry that there is an established best practice for making the service neutral connection as described by EWON's independent engineer. Given that this best practice methodology appears to have been increasingly utilised from the 1970s onwards as an effective means for ensuring the integrity of the service neutral connection, the circumstances of this matter highlight some important issues for distributors.

Conclusion

Given the available information, EWON is not in a position to comment further on issues arising from the differing provisions of the various editions of the *NSW Service and Installation Rules* regarding responsibility for the actual connection of the service neutral with the consumers mains. The provider has relied on the 1999 *Rules* in denying responsibility for the failed service neutral connection on 25 July 2005 but EWON understands that these *Rules* should not be applied retrospectively. Rather, it appears that the information about the silence of the 1996 *Rules* and, it appears, the service rules prior to 1996 on responsibility for the actual connection of the service neutral and the consumers mains seems more pertinent in indicating where responsibility reasonably lies in the circumstances of this matter. In a situation where there is information available indicating that the failed service connection was made by the provider's predecessor [or an agent of that distributor] and where this is supplemented by credible information about industry best practice "for making service neutral connections aimed at minimising the risk of broken or poor connections", I believe it is reasonable for the benefit of any doubt to go to the customer.

Under the provision of Clause 6 of the Constitution of the Energy & Water Ombudsman NSW scheme I therefore determine that the provider should pay the sum of $3229.65 to Mr C as full settlement of his claim.

Under the EWON Constitution, this decision is binding on the provider. Mr C may elect within twenty-one days whether or not to accept this decision. If Mr C accepts the decision, he will fully release the provider from all claims, actions, etc in relation to this

complaint. In the event that Mr C does not accept my decision, he may pursue his remedies in any other forum he may choose, and the provider is then fully released from the decision.

Clare Petre
Energy & Water Ombudsman NSW
16 April 2007