

energy

Bulletin

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Restricted plumbing licences well overdue

Restricted electrical licences have been available in Western Australia for many years. These licences allow non-electrical persons to carry out relatively simple and routine electrical tasks. Restricted electrical licensing has served industry and the community well.

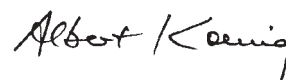
Many of our readers, in particular electricians, will be aware of the need for a reciprocal system of restricted plumbing licences in this State. It has been awaited for a long time.

It was something of a surprise when I recently became aware the WA Plumbers Licensing Board had declined to

implement a system of restricted plumbing licences in WA. Why was I surprised? Because other States implemented such schemes many years ago.

I'll therefore be taking this matter up with the Plumbers Licensing Board in an endeavour to resolve the current impasse.

Additional background information is inside this issue of the Energy Bulletin.



ALBERT KOENIG
DIRECTOR OF ENERGY SAFETY

Electrical Safety Awards 2004

Electrical contractors are now invited to nominate for the Electrical Safety Awards 2004. The winner of each category will receive an award certificate and a voucher to purchase Bosch tools to the value of \$1500, kindly sponsored by Siemens. Further details are set out in the nomination form enclosed with copies of this Energy Bulletin mailed to electrical contractors. Award winners will be announced at the Electrical Contractors Association's Awards for Excellence presentation night on 13 August 2004.

Summer wildfires

Overhead power lines caused a spate of wildfires during the summer of 2003-04. The fires resulted in the tragic loss of lives, as well as extensive stock and property losses.

There are lessons to be learned from these occurrences.

Further information is inside this edition of the Energy Bulletin.

Energy Safety



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Wildfires and overhead power lines

Although overhead power lines have in the past caused only a small number of wildfires, there were noticeably more such incidents during this summer [2003-04].

The two fires that occurred on 27 December 2003 near Tenterden and Bridgetown were the most significant. This was not only because of the tragic loss of two lives near Tenterden but also the extent of the stock and property loss that they caused in general. There was also potential for serious damage to nearby townsites.

Where it is suspected that a power line has provided the source of ignition for a fire, Fire and Emergency Authority (FESA) investigators often call upon the expertise of Energy Safety staff to provide technical advice and an independent assessment. When appropriate, the WA Coroner can also call for a report from Energy Safety.

The Director of Energy Safety has his own interest in these matters, to ensure public safety and to investigate for any possible breaches of regulatory requirements.

In this instance, reports were prepared for both the Tenterden and Bridgetown fires and are available on Energy Safety's website.

In the case of Tenterden, it was found that the fire resulted from hot metal particles falling to the ground adjacent to an overhead 3-phase 22 kV line. A long span live conductor clashed with an underslung earth wire with a resultant electric arc and short circuit fault. This occurred in conditions of high ambient air temperature that produced considerable conductor sag. This, coupled with strong gusting winds, caused sufficient movement of the conductors to allow them to clash.

The hot, dry and windy conditions allowed the fire to take hold and move rapidly across open farmland and to become established in dense bush.

The fire at Bridgetown occurred in virtually identical weather conditions but was caused by a tree clashing with a single-phase 12.7 kV overhead conductor. The tree, which should have been kept pruned, had been planted many years ago in a now defunct homestead garden. It appears that responsibility for ensuring the tree did not come into contact with overhead power lines had become somewhat confused between Western Power, the Department of Conservation and Land Management (CALM) and the Forest Products Commission. As a consequence of this, the tree had not been kept pruned and a serious wildfire resulted. Subsequently, the State Government took steps to ensure responsibilities were clarified.

There are two lessons to be learned from these occurrences. Firstly, it is essential that trees are kept pruned to ensure they will remain well clear of power lines under all conditions. Secondly, the electricity line operator (whether a utility or other organisation) can mitigate the risks by:

- shortening conductor spans by use of additional poles;
- increasing conductor spacings by using longer cross arms; or

- stabilising conductor movement in strong wind by using appropriately designed and insulated vibration dampers and/or conductor spacers.

All such incidents are preventable. Where it is suspected, or may have been noticed, that conductors of a line have clashed, it is essential in the interest of public safety that this be reported to the owner of the power lines. If no satisfactory remedial action results from this, then the matter should be reported to Energy Safety for investigation.

Government plan to secure electricity supplies

WA industry and general consumers supplied from the South West interconnected grid were forced to endure severe restrictions on the use of electricity during February 2004.

Shortly after, Premier Geoff Gallop announced that the Government had developed a plan to avoid a repeat of the electricity restrictions. He said the Government would pursue all avenues to secure the expansion of the Dampier-to-Bunbury natural gas pipeline and that Western Power, in consultation with the Government, would:

- develop new emergency management procedures;
- invest \$7million in more coal and liquid fuel electricity capacity

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Fire damage to the Tenterden power line

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next summer to reduce its dependence on gas;

- introduce demand management strategies with major consumers to cut energy use at peak times; and
- review 10-year power demand forecasts.

He also noted that a new 260 MW peak load gas-fired power station at Kemerton will come on stream in 2005.

February and March 2004 were difficult for Western Power due to the high demand for electricity resulting from sustained very hot weather. Many homes are now fitted with air conditioning and the related growth in system peak demand has been surprising. On 17 February 2004, when temperatures in Perth reached 41.5 degrees Celsius, the generation peak reached 2999 MW.

This was a huge 10% more than the previous summer peak of 2721 MW on 10 March 2003 – well in excess of the usual 3.2 to 3.5% growth in annual peak demand.

It can be seen that Western Power does not have an easy task, especially as gas supplies are not unlimited.

Western Power's wood poles to undergo scrutiny

Energy Safety recently announced, in response to various concerns about electricity safety and reliability expressed by individuals and associations, that it will conduct a comprehensive regulatory compliance audit of Western Power's wood pole management system.

Western Power has at least 600,000 wood poles in service and it is therefore no simple task for it to ensure the safety of its wood pole

assets, especially as wood pole strength deterioration can vary markedly depending on the environment in which a pole may be placed. Wood rot is generally the major factor.

This audit is expected to cover the use of wood poles from "cradle to grave" – in other words, from design policy (pole strength selection) to field installation, to in-service inspection, to life-extension (reinforcement), and finally to replacement. The objective is to assess compliance with regulation 10 of the *Electricity (Supply Standards and System Safety) Regulations 2001*. That regulation requires a network operator to design, construct, maintain and operate an electricity supply network in a manner that provides for the safety of people and property.

Western Power has welcomed the audit, which will be overseen by Energy Safety's Principal Engineer Electricity Supply Doug Ayre, noting that it will provide a useful check on its standards and procedures.

Energy Safety will be advertising for expressions of interest from consulting engineering organisations interested in undertaking this project under the overall direction and oversight of Energy Safety.

It is also expected that once the audit work has commenced, industry participants and members of the public will be invited to make submissions to the audit team, in relation to the safe use of wood poles by Western Power. The purpose of this part of the program is to collect information about particular events such as pole failures and their circumstances that may have been observed during the last five years, but that may not be known to Energy Safety.

Restricted plumbing licences well overdue

Many people in the electrical side of industry will be aware that restricted electrical licences have been available for many years in Western Australia. Such licences allow persons to carry out relatively simple and routine electrical tasks, often as part of their main trade or job function.

However, the WA Plumbers Licensing Board recently advised that it has declined to implement an equivalent system of restricted plumbing licences in this State. Other States implemented such schemes many years ago. For example, South Australia has had in place a system of restricted plumbing licences since the early 1990s – a system that was developed in response to the restricted electrical licensing system.

The WA Plumbers Licensing Board has said that suitable training (other than via a plumbing trade apprenticeship) isn't available for restricted plumbing work, which typically involves work such as "changing out" electric water heaters. There was no indication that much effort was made to overcome the absence of a suitable training course. For the electricians who have done this type of work for many years (with the unofficial acceptance of the previous plumbing regulator, the Water Corporation) this advice was not welcome. To them, connecting water pipes to water heaters is nothing but "old hat" that provides an efficient and cost-effective service to consumers. Gas fitters would undoubtedly think similarly.

Any new category of licence can be expected to require new or additional training. It should not be a difficult task for the Plumbers Licensing Board to undertake or sponsor the development of a suitable training course that can be

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delivered in Perth and regional centres by registered training organisations. This is what was done in the case of restricted electrical licences.

Courses in restricted plumbing are conducted in New South Wales, Queensland and South Australia. The Queensland course is of 52 hours duration.

The Director of Energy Safety will be taking this matter up with the Plumbers Licensing Board. Hopefully the current impasse can be resolved quickly.

Energy Safety's student engineer vacation employment program

Final year engineering students Alvin Gee and Richard Thach worked with Energy Safety during their summer vacation under Energy Safety's Student Engineer Employment Program. Alvin Gee is a Mechanical Engineering / Commerce student at the University of Western Australia. Richard Thach is studying Electrical Engineering at Curtin University.



Richard Thach (left) and Alvin Gee at work with Energy Safety

Alvin and Richard carried out some valuable work during their stay with Energy Safety including research, analysis and preparation of reports and papers. They covered embedded generation, electric shock incidents, power system calculations, national gas appliance certification, defective gasfitting work and hydrocarbon refrigerant. They also participated in site inspections of regulatory interest.

Energy Safety is encouraged by the success of the vacation work program for engineering students, which helps to prepare them for their careers as professional engineers.

Energy Safety's Inspectors recognised at FESA Community Safety Awards

Energy Safety's Gas and Electrical Inspectorates were recognised at FESA's (the Fire & Emergency Services Authority of Western Australia) Community Safety Awards in 2003.

Community Safety Meritorious Certificates were presented to Energy Safety's Gas Inspection Branch and also to the Electrical Inspection Branch, for "outstanding efforts in supporting and promoting community safety in WA".

Energy Safety's Gas and Electrical Inspectors were nominated for a Community Safety Award for their close work with FESA's Fire Investigation Analysis Unit to establish the cause of a fire that resulted in a fatality at the City Beach Ocean Gardens Retirement Village in July 2003. The efforts of the inspectors in the reconstruction of the fire scene assisted FESA's



Pictured at the Community Safety Awards presentation are, from left to right, Energy Safety's Chief Gas Inspector Kevin Hooper, Energy Safety's Acting Chief Electrical Inspector Gary Scott and the Hon. Michelle Roberts MLA, Minister for Emergency Services

FIAU to identify the cause of a fire, which is believed to have started due to a gas heater being placed too close to a television set. This, and other simulations carried out in conjunction with FESA, applied a scientific approach to the fire cause determinations and facilitated the development of appropriate gas safety and fire prevention messages for the community.

Alinta's Gas Inspectors also received a Community Safety Meritorious Certificate for their close work with FESA's FIAU, in particular, for assisting with the cause determination of a fire that occurred at Hillary's Boat Harbour in June 2003.

FESA's Community Safety Awards recognise individuals, groups and organisations that have made a positive contribution to community safety in Western Australia. The Awards acknowledge and promote involvement in community prevention and preparedness activities, including the delivery of appropriate education and safety messages. The Awards were introduced in 1999.

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For further information related to Energy Safety's articles, please contact Harry Hills (telephone 08 9422 5208 or email hhills@docep.wa.gov.au).

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