

# WireAlert™



**WireAlert Submission to the  
Senate Select Committee on Fuel and Energy**



The power to save lives

EziKey Group Pty Ltd trading as WireAlert is a wholly owned subsidiary of Aurora Energy, the Tasmanian Electricity Distributor and Retailer.

WireAlert appreciates the Senate Select Committee's interest in the WireAlert device and will focus this response to the safety of electricity infrastructure in relation to:

- Benefits to Electricity Distributors & the community
- Application of the WireAlert technology in smart grids.

### **Benefits to Electricity Distributors & the community**

Traditionally Electricity Distributors have invested heavily in increasing the safety and reliability profile of their higher voltage network components. Smart grids currently only manifest themselves in top down asset condition monitoring extending to the nodal point of zone substations.

Beyond these nodal points limited investment is being dedicated to improving the safety profile of the low voltage network. Therefore Electricity Distributors do not have the capacity to monitor the condition of their low voltage assets and are virtually blind to the dangers to which they may expose their customers.

This means that the society dependent commodity of electricity is "delivered" to consumer's homes with an inherent risk, where it is possible to cause injury or death if there is a failure to take adequate safety precautions and adequate measures if unsafe conditions exist.

Cables running along the road, regardless of over-head or under-ground, and onto properties up to the point where they enter the home are owned by the Electricity Distributor.

Those cables are subject to general wear and tear, weather influences and accidental damage. As a safety precaution houses are equipped with an earth return which allows power to leave a home in case the neutral cable is damaged. However, in most cases the earth has proven to be inadequate to sufficiently reduce the risk of degraded or broken neutrals.

When this happens, power may find another way to leave the home – for example via water pipes, stoves, metal taps or any other item that can conduct electricity.

This situation can be very dangerous and may result in electrocution if someone touches an item through which electricity is passing.

As the majority of potentially life threatening faults of broken neutrals occur in the part of the wiring which is owned by the Electricity Distributor, it is the distributor's legal obligation to ensure the integrity of those installations.

The significant risk of harm posed to the community by broken or compromised neutrals is well understood by the electrical supply industry and has been demonstrated in deaths and injury across Australia. Each Electricity Distributor receives hundreds of shock reports per year making it thousands across the nation each year. This is a material business risk for Electricity Distributors with potential for far reaching consequences and duty of care requirements.

The invention of the WireAlert device has changed the landscape for power distribution profoundly, impacting the liability and risk profile of Electricity Distributors across the nation.

WireAlert was initially invented as a risk mitigation strategy for Electricity Distributors, designed to uncover life-threatening broken or defective neutral connections. However, during extensive field trials and the Tasmanian roll-out of the device by Aurora Energy, the WireAlert device has proven to be a revolutionary tool with a breadth of applications, detecting a range of faults on the distributor's network as well as inside homes.



The power to save lives

By constantly taking measurements and running sophisticated algorithms, the WireAlert device detects the health of the wiring from the point where it has been plugged in, back to the transformer out on the road. Being on the watch 24/7, the device uncovers system faults before they become dangerous.

The device has been designed to reduce the impact of failing electricity assets, such as loss of electrical supply, electric shock, house fire and death from electrocution, on members of the community and has the potential to save lives.

While the debate about smart grid and smart metering is raging around the nation, Aurora Energy has very efficiently smartened up the Tasmanian Low Voltage network by rolling out WireAlert devices to residential and business customers around the state.

Since the roll-out of 210,000 WireAlert “safety sensors” the following faults have been detected, reported to Aurora (utilising existing utility – customer communication via call centre telephone response) and repaired:

- 82 faults, which had the potential to be lethal
- 519 faults, which had the potential to cause a house fire
- 907 faults, which had the potential to be a dangerous safety issue

There is a substantial number of devices currently being trialled by a number of distributors around the country and a roll out is in the planning stage for the community of Esperance by Horizon Power in Western Australia. Though no state has legislated the technology as yet, it is strongly supported by a number of State Electrical Safety Regulators, including Tasmania and Victoria.

### **Application of the WireAlert technology in smart grids**

WireAlert recommends the integration of its technology into the minimum standard specification for smart grids (not necessarily the standards for smart meters) ensuring that the best available and most cost effective technology on the market is adopted with the aim to prevent death, injury and/ or damage to property due to degrading neutral wires.

The inclusion of the WireAlert technology into smart grids will provide the opportunity to significantly shift community engagement as it adds the highly relevant benefit of consumer safety beyond the management of peak demand and daily energy use with the aim to reduce cost and carbon footprint.

Much discussion is occurring in the market place at the moment about whether customer supply monitoring should be in the smart meter, or separate to the smart meter.

From a WireAlert perspective this question is irrelevant as the only pre-requisite for the integration of the technology into smart grids is communication regardless of where this facility is located.

While smart grid and smart metering technologies are still only in the trial phase in Australia and a blanket coverage of the nation is perhaps years away, the risks posed to the community by neutral and active degradation are very real and require immediate action. Especially now that the WireAlert technology, detecting those unsafe conditions, is commercially available.

**A safer low voltage distribution network is no longer wishful thinking but is a reality as proven by the Tasmanian roll out of the standalone plug-in device.**

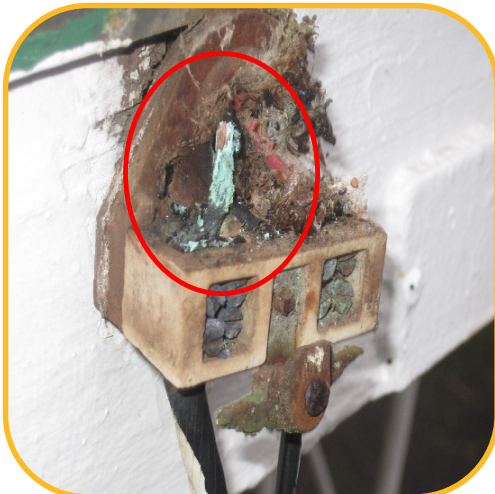
### Examples of faults detected in Tasmania – Broken Neutral

If left un-detected, these faults have the potential to lead to **serious risk of electrocution**



### Examples of faults detected in Tasmania – Degraded Active

If left un-detected, these faults have **the potential to lead to house fire** and will **certainly lead to service disruption**.



### Examples of faults detected in Tasmania - Switchboard

If left un-detected, these faults have the potential to lead to a **high risk of house fire**.

