



2019
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Workplace Safety
Award

Part 1
Descriptive Summary

Workplace Safety
Innovation

Industry Game-Changer: the Pole Grab

*“The pole grab is an awesome piece of kit that has enabled our work tasks to become safer and easier to complete.”
Hector Diamond, PowerNet line mechanic.*

What Safety Issue Does This Address?

New Zealand’s electricity network is in many places an aging network, with many power poles timetabled for replacement now and over the coming decades. Without good safety equipment and practices, working with power poles can be dangerous and challenging for electricity line mechanics.

Joe Reti, a field training officer at PowerNet, identified a safety risk to field teams when accessing failing poles. He saw the need for a strong but lightweight piece of equipment that could safely manoeuvre power poles in challenging locations.



PowerNet line mechanics with the pole grab.

Due to their weakened state and often poor condition, failing poles must be handled with greater care. If located in places where it’s not possible to gain easy access with a bucket truck and crane, or where there is no safe way to support the pole, the risks are compounded.

To counter these risks and improve field safety, Joe and his team designed and developed a fit-for-purpose, custom-made, lighter-weight pole grab that allows greater safety, manoeuvrability and flexibility when removing and replacing poles.

This invention has the potential to make working with power poles significantly safer for PowerNet field teams, and for teams working on electricity networks throughout New Zealand and internationally.

How was the issue or problem addressed?

Back in 2016 PowerNet developed a safety testing procedure that field staff completed before accessing pole structures. The unpredictable nature of working with failing poles significantly raised the risks of injury to field teams or equipment damage.

PowerNet management tasked Joe to come up with a solution. The goal was to design a piece of equipment specifically for the electricity distribution industry to make the workplace safer for field teams working with power poles.

“The main aim was to build something that was fit-for-purpose, easy to detach from a crane, and constructed from the right material to make it light enough to be flexible and easily manoeuvrable for the end user,” says Joe.

The development phase focused on combining design, capacity and weight-loading. It included engaging a local engineering company to undertake weight-load bearing calculations.

What action was taken?

A steel prototype pole grab, weighing 180kg, was built and is being trialled in the field. It allows line mechanics to hold broken poles and climb poles of questionable integrity. It can be attached to a range of vehicles, including smaller trucks, and utilises a safety-interlock system to support a pole in a held position.

Throughout the development process, PowerNet supported Joe with significant investment to innovate. Joe has collaborated with people throughout PowerNet—sharing his concept and highlighting the benefits.



The pole grab at work.

What was the outcome of the initiative?

The prototype pole grab equipment creates a safer working environment for all field team members working with power poles, eliminating significant safety risks. It is used in challenging situations to support the safe removal of a pole.

Together with its safety features, the pole grab’s lightweight frame means it can be used on smaller vehicles to clamp larger poles. Its versatility and adaptability for different plant and equipment make it more cost-effective.

The prototype’s trial on the PowerNet network is identifying potential applications and testing usability and reliability, with positive results. The prototype is equipping field teams with the capability to safely manipulate poles when installing, straightening or removing them, without being under or around a load.

The pole grab is proving to be a practical, fit-for-purpose solution that makes every day field work safer for line mechanics. Whether it’s pulling poles, removing or adjusting them, this innovative, custom-designed equipment is likely to be a game-changing tool for field safety.

PowerNet has been working closely with SEC Group to finalise a patent for the pole-grab.