

Critical Risk Training

When you think of powerline workers and risk – images of people working up ladders quickly comes to mind.

But sometimes the highest risks faced in the field are not immediately obvious, PowerNet critical risk project manager Graeme Webby says.

“Probably the biggest risk our teams have the least control over is driving to and from jobs – not the work itself,” he says.

Analysing risk across all field team activities has been a key part of Graeme’s focus during the development of a critical control framework – essentially the continued evolution of best practice workplace safety.



Staff training on the critical risk project.

“Our teams are really committed to ensuring the power stays on, but we need to ensure they are always safe out in the field,” Graeme says.

The project supports the PowerNet motto: “Work safely, someone expects you home tonight”.

Every day dozens of lines workers are working in the field, and the health, safety and environment team’s challenge is to further enhance their workplace safety.

The framework has been worked on for the past year and Graeme says the feedback from all the field team during the consultation and validation phases has been invaluable.

“We identified all the different critical areas – vehicle movements both on and off road, working with electricity, work in confined spaces, lifting loads, trimming trees, and working at heights,” Graeme says.

Risk factors are analysed for all work activities – such as when staff are working up a power pole. The failure modes of poles have been analysed taking into account not only planned maintenance, but also factors such as if a pole has been hit by a vehicle.

“Poles could be cracked below ground,” Graeme says.

A lot of the analysis is done by working out a hypothetical worst-case outcome, then working backwards to identify steps that can be taken to prevent it happening, he says.

Using the data from PowerNet’s competency framework was another integral part of the project, Graeme says.

The project aims to introduce workable, everyday processes that provide a real safety benefit, by reducing unnecessary administration.

“We identified a few gaps in our system, and once we’d fixed those it was a question of how do we apply this to the people in the field.”

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Staff training on the critical risk project.

Critical Risk Training cont....

To achieve this, a digital dashboard system is being developed. It is based on ideal workflows for a range of work functions and allows for work plans to be checked off on a mobile device by staff responsible for each step.

The dashboard system is designed to ensure all the necessary steps are taken before a job is started. If one step has not been completed the work plan goes back to whoever needs to complete the outstanding task or check.

"We're trying to make it simple for our staff in the field," Graeme says.

The dashboard brings all the information together to tell the team leader whether everything required has been done, he says.

Steps in the workflow could include equipment needed, whether someone is qualified to operate a piece of machinery, whether a vehicle is ready to go, or whether a contractor is authorised to work on a job. The system leads the user through all the critical activities included in the work and allows them to record their risk assessment process and the controls put in place to manage those activities.

The dashboard is still in the development process with a trial expected to be underway in May. The plan is to introduce it to all teams by the end of the year, and work on enhancing it throughout 2020.

PowerNet general manager business growth Justin Peterson says buy-in from everyone involved is needed to ensure the system works well.

"We're not compromising safety for productiveness," he says.

Graeme says the dashboard system should ultimately mean less time spent double-checking or revising plans and hopefully allowing teams to get their work done safely, in a more efficient manner.

"We want our staff to be proud of their work and celebrate their everyday successes," Graeme says.

Fewer Outages Benefitting OtagoNet Customers



Balclutha.

Customers notice when the lights go out – but they probably don’t notice when the lights stay on for longer.

And that’s just fine for PowerNet, who are quietly high-fiving significant improvements for OtagoNet’s 14,912 customers, with fewer outages and shorter outage durations during the past year.

PowerNet chief operating officer, Michelle Henderson says the Commerce Commission monitors electricity distribution networks on behalf of customers to ensure power outages aren’t happening too often, or for too long, on respective networks.

This was proving more challenging on OtagoNet due to the way the network is designed, and because of changing work practices to ensure the highest safety standards are maintained, including the requirement for field teams to spend less time working with live lines, Michelle says.

OtagoNet covers a large area from near St Bathans in the North to the Chaslands in the South and inland from the Blue Mountains in the West to Shag Point on the North-East coast.

PowerNet’s leadership and planning teams decided to track and monitor outage metrics more closely in the year 2017-18 year. They continued to actively manage outages throughout the 2018-19 year – with Roy Duffin, PowerNet outage planning manager, starting to reduce the tolerance on how long outage requests could be.

Field teams doing maintenance and new connections started looking for ways they could share shutdowns with other teams, such as technical and major projects.

They also used generators more often where it made sense so that customers outages weren’t happening at all, or for short periods only.

Michelle says she is very proud of how her teams knuckled down to solve a new industry headwind, and their ability to work in with system control to produce an impressive solution.

The teams recognised that to future-proof the network – so that outages were shorter in the future – there was a need to move faster on automation and new switch improvements.

These improvements mean power outages can be more targeted, meaning fewer customers are affected.

In early April, the 2018-19 numbers for duration and frequency of power outages rolled in showing the active management and future-proofing of OtagoNet was having a positive impact for network consumers, with fewer outages and shorter durations.

“It was an excellent result that gives us a sense of pride, and confidence that we can continue improving reliability of supply to the network,” Michelle says.

Girls with Hi-Vis Returns to PowerNet



Symarah Bennett-Young.

A career in an industry with loads of variety was high on the wish-list for Invercargill's Symarah Bennett-Young.

And it's something her role as an apprentice substation maintainer at PowerNet is serving up in spades.

Symarah, 22, got her first taste of the industry when she was 15 – taking an electronics class at Southland Girls' High School, where she got to work on amazing projects like solar powered fans, and programme miniature electronic cars.

Last year she attended the Girls with Hi-Vis event held at PowerNet, which further sparked her interest in the energy industry.

Symarah highly recommends Girls with Hi-Vis events and says that's where she first found out about the job she now has – through talking to PowerNet staff.

She'd never seen a transformer before, and loved getting a ride in a bucket truck, trying on personal protective gear, and changing fuses.

"I thought it was really good, especially as they get you out and about in the field. They get you right in there doing it."

She started as an apprentice substation maintainer in early 2019 after completing a pre-trade electrical engineering course at the Southern Institute of Technology (SIT) in 2018.

She had previously taken some time out after finishing school to weigh up her options, before deciding to study at SIT, and then apply for the job at PowerNet.

"It was one year of full-on study, but was always in the back of my mind. I didn't just want to jump into something and be in all this debt."

She received the PowerNet sponsored award at SIT for the most improved student on the course.

"That was a real bonus, and helped get me to where I am."

She believes winning the award helped get her noticed – and didn't do her any harm in the job application process, either.

"I wanted to do something that had an apprenticeship, so I could work and learn at the same time."

She was out in the field from the first day – and says watching, listening and learning have been a big focus during her first couple of months.

Her main task at the moment is assisting with substation checks.



Michelle Henderson wins prestigious Health and Safety Leadership Award

PowerNet Chief Operating Officer Michelle Henderson won the Safeguard Business Leaders Health and Safety Forum - Leader of the Year Award at last night's (Tuesday, May 28) New Zealand Workplace Health and Safety Awards held in Auckland.

Henderson won the award for developing the innovative 'Coaching by Kilometre' programme in which she and leaders travel throughout Southland and Otago coaching PowerNet frontline teams to lift leadership capability. Driving time is used in a structured way for coaching, debriefing and planning.

The annual awards, supported by WorkSafe NZ, recognise excellence in the field of health and safety for everyone involved in the prevention of work injury and ill-health.

Henderson said she was proud to represent PowerNet and show how a business in the south was able to achieve national recognition.

"Thanks to all the team from the frontline to the leaders and CEO Jason Franklin and the board. Also thanks to my family. They put up with a lot when I am away travelling and facing operational disruption through weather events," she said.

She said she had always been supported to innovate and lift health and safety standards to reinforce PowerNet's 'Safety Always' ethos.

Franklin said the entire PowerNet team was proud of Henderson and that the win was a reflection on how well respected she was in the health and safety field in New Zealand.

"It's a tribute to Michelle's ongoing commitment to safety and recognises her as a great leader who champions continuous improvement in everything she does," he said.

'Coaching by Kilometre' encourages leaders to engage regularly with field leaders and their staff, something Henderson said was critical to achieving positive health and safety outcomes.

"Coaching by Kilometre is a key plank in building a stronger health and safety culture at PowerNet," she said.

New Ripple Control Plant for Palmerston Substation



Palmerston substation.

A ripple injection plant has been successfully commissioned at the Palmerston 110/33kV substation in east Otago on the OtagoNet network.

PowerNet major projects manager Dave Tose says the plant was fully commissioned on 21 February 2019.

“It was a great effort and many thanks to the contractors, consultants and PowerNet staff that have contributed to making this project a success.”

The new plant enhances reliability of supply on the network, Dave says.

The ripple injection plant takes over the complete load from the existing ripple plant at the Palmerston substation.

The old ripple plant will be retained until the new Quarry Road substation is built – programmed for 2021-22 financial year.

The new ripple plant will then be moved from the Palmerston substation to the Quarry Road substation.

About ripple control:

Many households take advantage of using “Off Peak” hot water savings. This system operates by “ripple control”, where a signal is sent to your hot water system telling it to turn on and off when power is at its cheapest.

Staff survey helps drive further improvements to Personal protective equipment (PPE)

Balancing safety, comfort and durability is the aim when outfitting field teams, PowerNet's general manager business growth Justin Peterson says.

Feedback from teams via a company-wide survey has led to the trialling of new lighter weight outer garments.

PPE needs to guard teams against the possibility of arc flash or electric shocks, but also needs to be lightweight and comfortable enough, so that people aren't overheating while working outside, he says.

Justin says the survey – which had a 97% response rate from operational staff – encouraged them to source the new lighter weight garments for all year-round use.

The survey gauged how people felt about the gear they use every day. While most said their gear was suitable, management had taken on board feedback around a need for light weight gear.

Staff commented that equipment that could be worn comfortably year-round was important.



Justin Peterson.

PowerNet health, safety and environment manager Phil Johnson says the company tries to do everything it practically can do to ensure staff have suitable and effective protective gear on in the field.

"In the unlikely event of something going wrong, they've got the best protective gear on."

Justin says the new gear seems to be a winner with staff who have tried it to date.

"We trial our equipment before we push it out to our field teams."

Keeping teams dry when working in wet conditions was of course a high priority – and feedback that gear was water-proof and durable was pleasing to hear, he says.

An overall focus on improving safety, comfort and durability for field team gear was part of PowerNet's continuous improvement approach, Justin says.

Uptake of EV's in Southland Growing

“Gaining more understanding around the capabilities of Electric Vehicles (EVs) is at the heart of PowerNet’s efforts to help consumers connect with future transport opportunities,” PowerNet general manager new energy development and strategy, Kavi Singh says.

Right: PowerNet’s Nissan Leaf



PowerNet is excited to be leading the way in the introduction and use of electric vehicles in southern New Zealand. For households, communities and businesses, driving an electric vehicle is one way they can all contribute to a cleaner, greener New Zealand – and potentially save money too.

Buying an EV does cost more than a petrol or diesel-fuelled vehicle but running costs are about 70% lower, so savings accrue as you drive more.

Kavi says PowerNet is working to understand the existing capabilities of EVs in relation to performance and range – but also in relation to possible future challenges, such as power grid capacity and control required to support increasing numbers of EVs. “As more electric cars arrive – they are really just a big battery appliance at the end of the day – we’re studying how much more draw there could be on the power grid, and helping educate people about the opportunities.”

PowerNet’s fleet includes two fully electric Nissan Leafs, and five plug-in hybrid Mitsubishi Outlander vehicles. These are great transition vehicles for the longer distances across our southern electricity networks, Kavi says.

“There’s no better way of learning about EVs, than trying one out.”

The range of EVs is increasing all the time, and while they are primarily used for shorter trips around urban areas at the moment, range for new EVs in late 2019 is expected to reach 500-600km, he says.

While the majority of EVs are in urban New Zealand centres at the moment, rural areas were likely to benefit greatly from EVs with a larger range – as per kilometre costs reduce with larger distances covered, Kavi says.

EV sales in New Zealand are increasing steadily with 2018 sales doubling that of the previous year, he says.

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Jason Franklin – Chief Executive

1. Why have you chosen to buy/use an EV?

We've had a Nissan Leaf for 6 months. I imported it new from the Nissan factory in the UK. I chose it as my previous vehicle was coming up for replacement, and it was an opportunity to change to an EV. When I looked at the pricing, it just seemed like the right time to do it – wanted to also lead by example on switching to electric.

Also, the new Leaf model, version 3, does not look like a "Nana" car, so not embarrassing to drive! Kavi Singh and Mark Zwies obviously don't have that complex, as they have Nana models. When I upgrade later to a Tesla, I will try to sell my version 3 to one of them (for a good price of course!)



Jason's Version 3 Nissan Leaf.

2. How does it differ from a petrol/diesel car in terms of driving?

The performance and driving is fantastic. You don't lose anything at all. The power and everything is fine. I do a round trip of 90km a day travelling in and out from Riverton and I charge it a couple of times a week – it has a range of about 300km, so no issues with range or anything.

3. What effect/impact is it having on your day-to-day activities?

One of the things that seems quite strange is I never go to a petrol station. I come home and when I need to I plug the EV in, once or twice a week, I do. I had a 7kW charger installed in the garage. It has an app, which I have set the timer to kick in at 11pm. It was just getting into that habit of plugging it in once or twice a week – not hard at all.

4. How does it stack up in terms of costs to run/maintain?

I had to check the numbers a few times, because it seemed far too good. The running costs work out at about 18-20 cents a litre equivalent to petrol – so it's more than ten times cheaper than petrol. To be fair, you do pay more upfront when you buy an EV, but that purchase price is really starting to come down now.

5. What has surprised you about EVs compared to common myths/misconceptions?

Acceleration and power – I thought there'd be issues around that but quite the opposite. It's probably got more acceleration compared to a traditional combustion engine. I haven't seen any downsides, and if you're smart about when you charge, you can charge overnight at low power price times, and it's really economical.

6. Would you recommend an EV to a friend, and is so, why?

Most definitely. My next vehicle after this will be an EV as well.

Kavi Singh – General manager new energy development and strategy

1. Why have you chosen to buy/use an EV?

We bought a Nissan Leaf about four months ago. I think there's no better way to understand an electric vehicle than to use one.

2. How does it differ from a petrol/diesel car in terms of driving?

My model is a slightly older one with a range of about 130km on one battery charge. The range changes depending on driving style and if other major accessories are being used such as AC, wipers, and headlights. It feels great to drive and everything works pretty much the same as a traditional car. They are quick off the mark, very steady – maintenance is good, haven't had to do any yet. It handles really well, and is really stable round corners.



Kavi Singh.

3. What effect/impact is it having on your day to day activities?

I find it a very practical vehicle – it's fantastic. I don't have to go to a petrol station (although some petrol stations now offer charging stations). I only need to charge it once a week. The kids love it – my wife is a little concerned about the car's look. We use our second car for out of town trips, because of the range and it's also bigger – we have three kids.

4. How does it stack up in terms of costs to run/maintain?

It's cheaper to run.

Based on average home electricity charges, my car costs about \$3.50 per 100 km/\$17.50 for 500 km. It's quite a big difference in costs compared to equivalent size petrol car. Some energy retailers offer cheaper plans for EVs. Charging at home on electricity night rate – may amount to \$2 per 100km – quite drastic savings.

The purchase cost is higher than an internal combustion engine car – my Leaf cost \$15,000 with 11,000km on it – good battery life, nothing wrong with it – could probably buy one for \$10,000 if you were only planning to use around town. The latest model Nissan Leaf is about \$50,000 to buy new, and has higher efficiency and more features.

5. What has surprised you about EVs compared to common myths/misconceptions?

They can accelerate fast, which is different to what many people think prior to trying one. They are heavy with low balanced centre of mass and so handle well. They are quiet and you have to be extra careful when crossing footpaths, and going in and out of driveways.

6. Would you recommend an EV to a friend, and is so, why?

I'd definitely encourage people to try an EV – PowerNet customers interested in buying one can come in and try it. Companies too – company fleets considering converting. When companies get an EV in their fleet, it tends to become a popular vehicle as people enjoy driving them.