

The Essential Energy Road Safety Journey

*Mobile fleet condition and performance
influences road safety outcomes*



Organisation: Essential Energy
Size of fleet: ~3500
Employees: ~2900

Case Study:

Road safety light bulb moment: Fleet management is about more than transactions

Organisation: Essential Energy

Size of fleet: ~3500

Kilometres travelled: 40 million annually



Key outcomes

- o Essential Energy builds, operates and maintains the electricity network across regional, rural and remote areas that cover 95 per cent of New South Wales (NSW) and parts of southern Queensland
- o Customers and the communities it serves are at the core of Essential Energy's values, with community safety a key focus
- o Safety is central to the business culture, with every person at Essential Energy empowered to make safety their own
- o This commitment to safety extends beyond the operation of a safe, reliable and cost-effective electrical network, and includes a strong commitment to road and driver and community safety
- o An operational fleet should be viewed as a portfolio of high risk, mobile assets
- o It has been identified that fleet condition and asset health has a direct influence on road and workplace safety performance, engagement and behaviours of operators
- o A comprehensive, asset management approach measures, manages and controls the three interdependent and variable "levers" of cost, risk and performance together, maximising the overall business value
- o The application of asset management principles to an operational fleet delivers safety improvements and can also enhance productivity and lead to efficiencies for employees, resulting in increased engagement and improved behaviours
- o The application of these principles has delivered fit for purpose assets, that are maintained and operated as designed, with quality and performance assurances across the full lifecycle
- o Partnering and seeking advice from specialist providers can lead to improved outcomes when investigating technological aids to improve road safety

Synopsis

Working in the high-risk electricity sector, Essential Energy's workforce has a heightened understanding of safety. However, extending safety awareness to an everyday activity such as driving, something many of us do regardless of their type of work, was an important link to make for all employees.

Given the 40 million kilometres travelled every year by Essential Energy drivers, awareness of driver safety was identified as being of critical importance. The plan has received support across the business, from management through to on-the-ground employees.





Introduction

As an electricity distributor, Essential Energy is accustomed to dealing with high-risk situations involving the maintenance of power supplies and the electricity network.

The safety rigour of on-site work practices has been applied to mobile plant and equipment, strengthening the links between fleet condition, mechanical performance and road safety.

The key objective was to improve safety outcomes through active management of fleet condition and performance, with related benefits such as improved workforce awareness and engagement in the topic of road safety also noted.

During this process, the management of fleet assets, was reviewed. The findings identified several areas for improvement, including:

- operational risk identification and management
- reliability, dependability and performance management
- whole of life management of asset expenditure.

Symptoms such as losses in efficiency and effectiveness in each of these areas clearly did not meet the organisation's expectations, nor align to its objectives, vision, purpose and values. The review identified that the symptoms were reminiscent of a single root cause: ***a lack of structured asset management principles and practices being applied to a complex mobile asset portfolio.***

The existing Fleet Management function had focused on the facilitation of transactional activities such as registration, fuel, and service invoice processing, through an outsourced provider.

This case study reviews Essential Energy's road safety journey, with a particular focus on how establishing a Mobile Asset Management (MAM) function to replace the existing Fleet Management function is working towards an improved safety performance. The case study will also review the engagement of both management and field employees with what is a transformation in the way fleet is viewed and managed.

Company overview

Essential Energy's footprint covers over 737,000 square kilometres of landmass with over 183,000km of powerline and 1.3 million poles. The network services 170 hospitals, 1,250 schools and more than 855,000 customers, with approximately 4.6 customers to each kilometre of powerline, which is almost one-tenth the customer density compared with their counterparts in NSW.

Essential Energy employees travel 40 million kilometres each year utilising around 3500 mobile assets, including 1,100 light commercial vehicles, 1,770 trailers and specialist plant, 500 heavy vehicles and 60 passenger vehicles.

The large and often harsh geographic area that defines Essential Energy's footprint is one of the main safety challenges to be considered, with the majority of operations across rural, regional and remote areas bringing fleet condition, speed and fatigue risks into play.

The diversity of the mobile fleet creates safety challenges. Ranging from passenger cars and light commercials to semi-trailers and regulated plant, much of its plant and equipment must balance the ability to be roadworthy while able to access power poles in any location and any terrain.

While employees are likely to be more receptive to safety messages given the nature of its work, widespread vehicle ownership and operation can also contribute to complacency in extending workplace safety to the road.

Essential Energy's commitment to keeping employees, their families and the public safe, improving fleet safety performance, and to honestly and thoroughly investigate safety incidents, is reflected in the 'make safety your own' Corporate value. Continuous improvement in safety culture and performance is also one of the business objectives.

The future starts now

Essential Energy was using an external Fleet Management organisation to perform the majority of its fleet management functions. This approach and structure primarily focused on transaction management, such as managing invoicing, licensing and registration. As a result fleet costs had been managed closely, however risk and performance management of the assets lagged, especially in the areas of asset condition and maintenance quality.

Essential Energy realised that the structured asset management principles and practices that it applies to the electricity network are equally applicable to its own 'mobile asset' portfolio, with vehicles, plant and equipment requiring similar management.

In response to the review of fleet asset management, Essential Energy embarked on a program known as the "Fleet Improvement Program", which includes establishing its own asset management function for 'mobile assets', colloquially known as fleet. When it comes to inspection, maintenance, repairs and improvement, Essential Energy is building the capability to carry out these activities on its specialist equipment, through combined internal, external and third-party groups. Under the newly established asset management function, these trusted and proven groups perform the maintenance on the assets, with a stronger focus on quality assurance through systems more aligned to asset management than traditional fleet management functions.

This also reflects a further change in Essential Energy's thinking, where the three key quality assurance levers of cost, risk and performance are now seen as inter-related, and affecting one influences the others, a key principle of asset management as a discipline. Much of Essential Energy's reporting now measures all three, and minimum benchmarks have been set for each measure.



Link between fleet and road safety

Incident data analysis performed during the review showed up to one-fifth of Essential Energy's vehicle-related incidents were contributed to by mechanical or maintenance issues. Vehicle condition was further driving a lack of engagement in the inspection and discretionary care for vehicles, which exacerbated the cycle of vehicle issues.

In response Essential Energy has implemented several road safety measures, such as vehicle weight management, maintenance, selection and tracking (see opposite). It has also identified that in addition to investing in its fleet, driver behaviour and culture also needed to shift.

The first step was shifting the mindset in the business away from seeing vehicles as fleet to viewing them as complex mobile assets. In the same way that it manages poles and wires, the 'assets' of the electricity network, plant and equipment are assets that must be properly managed, in accordance with internationally-recognised practices that deliver high performance outcomes across the globe.

In other words, employees started to recognise that vehicles (particularly specialist mechanised equipment) are complex, high-risk assets that need to be maintained, just as a piece of high-risk electrical infrastructure requires specialised maintenance.

According to Essential Energy's Head of Fleet, Chris Dhu, the link between being safe in the energy industry and being safe while driving is a close and significant one.

"Extreme care is taken to maintain the electricity network to a very high level because we recognise that electricity represents high risk and danger for our employees and customers, and it's important we look at vehicles, plant and road safety the same way," he said.



This desire to continuously improve in the field of safety has also driven Essential Energy to change its approach to driver empowerment and education. Rather than administer formal 'driver training', Essential Energy's driver education approach will use a combination of formal, on-the-job learning and technology enabled coaching channels to focus on driver attitudes and behaviours on the road. The approach will sustainably improve risk awareness and action mindset across teams, while also highlighting drivers that have specific needs for assistance.

This sustained learning approach will empower drivers to make even more improved choices in the interests of Essential Energy's customers, other road users and their own safety rather than simply to comply with policy. In theory, this means drivers will not partake in at-risk behaviours, such as the use of mobile phones and speeding, not because policies stipulate so, but because removing these behaviours improves road safety for all.

Road safety measures

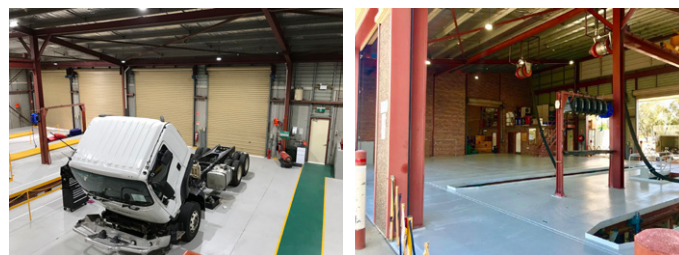
Vehicle weight management

Essential Energy has introduced a number of controls to ensure it not only meets but goes above and beyond vehicle mass regulations

Every one of its light and heavy assets is regularly weighed in service. Essential Energy's Fleet Coordinators, stationed throughout New South Wales, are all equipped with their own set of truck scales, and are regularly set up at depot exits and weigh any vehicle leaving the depot, confirming mass compliance, providing guidance on vehicle loading and inspecting load restraints.

The Fleet Coordinators, whose positions focus specifically on fleet quality assurance, also provide face-to-face driver education during the weighing process. In addition to meeting regulated standards around vehicle mass (GVM), Essential Energy is also undertaking additional practices such as measuring front and rear axle mass to ensure vehicles are operating in the safest possible configuration.

Essential Energy's focus on mass, loading and restraint has promoted awareness among drivers of vehicle weight, which is particularly important given the high mass nature of much of the specialist equipment they are required to carry to keep the lights on.



Vehicle maintenance

Traditionally, Essential Energy delivered heavy machinery and vehicles to an external provider for inspection, servicing and repair and then relied on the operator to pick up the equipment, check the work and ensure the equipment was safe to operate.

"That process is less than ideal because we employ very smart electrical workers, but then we ask them to inspect mechanical work," said Chris Dhu.

As part of its Fleet Improvement Program, Essential Energy is working with external maintenance and repair providers to improve quality control of inspection and maintenance activities, while also improving its own quality assurance through the establishment of asset management principles and practices.

This strong focus on quality assurance and risk management extends throughout the asset's life cycle, from design and build, throughout its operational life and including renewal or retirement phases, with equipment subject to a range of independent inspections and controls throughout.

One such example of this commitment is the disciplined approach to major inspections and overhauls. As the Owner and Operator of statutorily regulated assets, such as cranes, Mobile Elevated Work Platforms (MEWP) and other load bearing mechanised assets, Essential Energy is committed to completing a major inspection and overhaul of these machines at the 10-year point of their lifecycle.

Under the Fleet Improvement Program, a strong overhaul management process has been developed. This process includes centralised and documented risk and quality assurance steps, included in Inspection and Test Procedures (ITP), followed by robust Factory Acceptance Testing (FAT) processes at factory completion point. Prior to returning to service the assets are put through a rigorous Site Acceptance Testing (SAT) process, comprising of a full "shakedown", functional, performance and reliability assessment, ensuring quality, risk and performance expectations have been met.

Electronic pre-start

Another major – and popular – change Essential Energy has implemented to improve vehicle maintenance and condition is an app-based, electronic pre-start, defect reporting and auditing system, developed in-house and known as FIAS (Fleet Inspection and Audit System).

Every field-based worker is issued with an iPad or iPhone, meaning employees can simply open the app and scan QR codes on the side of each vehicle or asset to begin a pre-start inspection, report a defect, view any open defects or complete an audit of the asset. Scanning the QR code also brings up a link to relevant policies and procedures for that asset type.

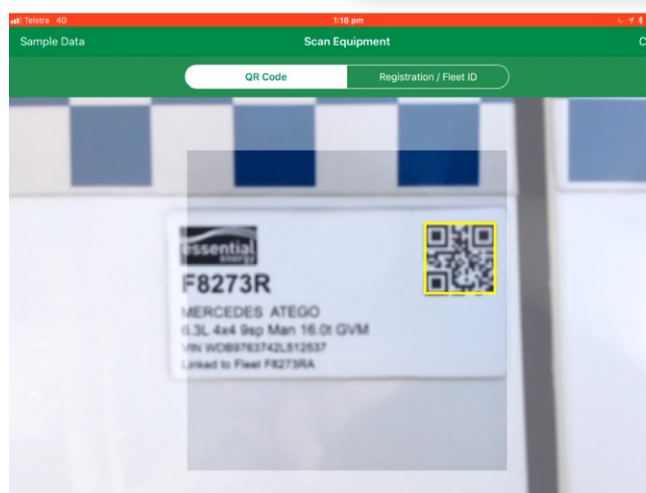
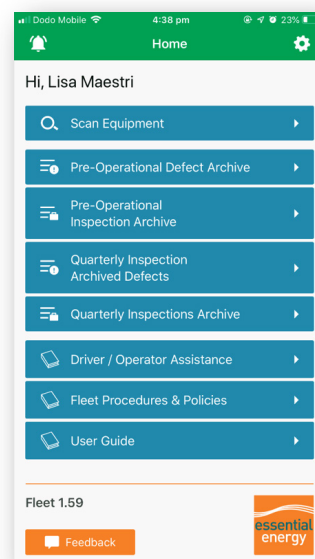
FIAS incorporates intelligent technology and identifies the inspection type required for the asset registered to the QR code. Most of the time, the app will bring up a shortened, daily pre-start process. Every seventh time a vehicle's QR code is scanned, a more detailed weekly inspection is triggered.

When the QR code is scanned, the driver can see any defects on the vehicle or asset and log any further defects they notice. Those defects are reported back to a central library, for action and recording. If they are rated moderate or high, the system notifies the supervisor of that equipment and the relevant Fleet Coordinator, who organises the required maintenance. Additionally, faults identified by the reporter as high risk trigger a “grounding notice”.

This notice is sent immediately to the Fleet Coordinator for attention and action as applicable. Until this “grounding notice” is removed, anyone who scans the QR code will be greeted with a red “do not operate” warning instructing the driver to contact the Fleet Coordinator for further guidance.

The app's functionality in this area was valuable when a recall notice was issued for a popular brake controller. Using the ‘back end’ of the app, Essential Energy was able to quickly mark the affected 170 assets of its light commercial vehicles and could instantly raise a defect and “grounding notice” for each of those vehicles. Any worker who scanned the QR code of an affected vehicle would immediately know it was out of service, preventing any equipment subject to the recall from being operated until it was safe.

While making the pre-inspection, defect reporting and asset auditing process electronic rather than paper-based, Essential Energy has deliberately not automated the process completely, with the system functionality designed to enable effective and efficient risk assessment and management, as opposed to completing the function. This maximises the effectiveness of the risk and quality assurance measures by leveraging the values, behaviours and thinking of the workforce.



Fleet App

“We recognise that electricity represents high risk and danger for our employees and customers, and it’s important we look at vehicles, plant and road safety the same way.”

Safety can be popular

Introduced in March 2018, Essential Energy's FIAS app has been popular with field employees, receiving "overwhelming support" and proving that safety measures can be popular as well as making life easier for employees.

The app and QR code-based system has replaced a paper-based system and now allows the instant escalation of issues if required. According to the Head of Fleet, the take up in the first week was impressive. "To date, we have recorded more than 132,000 pre-start inspections and audits, with 3,770 defects reported and actioned accordingly," said Chris Dhu.

"Naturally the improved visibility and speed of notification has correspondingly improved our defect response rate, and is having visible positive impacts on the overall serviceability of the fleet. The field teams continue to tell us how great FIAS is, and how much easier it has made their lives."

Vehicle and incident tracking

Essential Energy's incident reporting system (TotalSafe) allows field employees to instantly report an incident, either directly themselves through an app or by contacting the systems control centre, which then implements the action required. If fleet is involved in the incident, a notification box is checked in TotalSafe that automatically triggers an escalation through to the Fleet team for assessment and action as needed.

Essential Energy is also working through the introduction of In-Vehicle Monitoring Systems (IVMS). While IVMS are not unusual in companies that operate a fleet, Essential Energy is taking a strategic approach to the issue. A business needs and identification process has determined very specifically what Essential Energy wants from an IVMS – and that is to improve its response in the event of duress and to improve driver behaviour in an effective manner, with a simple and reliable solution.

Given the locations in which it operates, Essential Energy needs an IVMS solution that can provide connectivity for its people in regional and remote areas, and that provides accurate and detailed location and asset-based reporting.

Five star vehicle selection

Every vehicle in Essential Energy's light vehicle fleet must start out, before any modifications, as a cab chassis with a five star ANCAP safety rating. That is a non-negotiable policy. When it comes to heavy assets, the design and selection process popular in heavy industry circles called RAMBO (Reliability, Availability, Maintainability, Buildability and Operability) is used. The process considers and assesses a range of criteria to compare asset options and design configurations, involving representatives from all stakeholder groups that will engage with the asset across its lifecycle. Road and operator safety, including measures such as driver comfort and fatigue aids, are a key component of the evaluation.

Advice from the experts



Essential Energy has partnered with an asset management, engineering and technology firm to implement the improvements included in the Fleet Improvement Program, rather than approaching each project on an individual basis, maximising the combined benefits and speed-to-value of the program.

"Embracing cross-industry expertise in this way has allowed us to leverage benefits we would have never identified from the combined initiatives and provided both the support and challenge needed to build success," Chris Dhu said.

The advantage of this approach became clear when evaluating the benefits of monitoring and measuring driver behaviour.

Essential Energy decided it wanted to measure speed to variance and to provide that feedback in the cab via a dash-mounted screen and alert system, believing this would best improve driver behaviour.

A member of the integrated team questioned whether there was a real need for that information in the cab, particularly as vehicle manufacturers are constantly working on the issue and when there is "a big speedo on the dash".

Additionally, the team highlighted that adding another screen into the cab was likely to be more of a distraction to the driver than a help. Further research, involving a combination of operator and business experiences, system provider engagement and academic-based information confirmed that supplementary in-vehicle displays showing speed and variance do not improve driver behaviour, and often have a detrimental effect. This is commonly due to distraction or confusion between mismatched speedometer and GPS information.

This challenge, amongst numerous others, complements the support of cross industry experience and access to knowledge across all the improvement initiatives, leading to better outcomes for Essential Energy.

Implementation and lessons

Commitment

The commitment to safety as the first and core value never waivers.

Demonstration of Essential Energy's commitment continues through the Fleet Improvement Program, with the program implementing globally-recognised asset management principles and practices to what is a complex, high-risk asset portfolio, while introducing engineering and technology-based solutions to complement and enhance the improvements.

The capability, competence and capacity established under the Fleet Improvement Program will control and manage the interrelated aspects of risk, cost and performance in a responsible manner. This is key to delivering on Essential Energy's business strategy and meeting the expectations of its customers, its communities, its people and its stakeholders.

A safety leader

While Essential Energy's road safety journey continues, early indicators suggest it is making progress. This observation is further supported by the continued high level of engagement and commitment.

In addition to its internal desire to improve its fleet safety performance, Essential Energy continues to raise awareness and progress improvements in safety through influence across the industry, highlighting the benefits of asset management principles and practices being applied to fleet management functions.

The concept of the management of cost, risk and performance as interdependent deliverables is something Essential Energy aims to share with industry, supported by its own experiences.

Essential Energy's approach is one of best practice leadership across industries, going beyond compliance with safety legislation to maximise the safety of its people and the community wherever possible.

As Essential Energy's Chris Dhu observes, aiming for the highest road safety standard possible promotes worker buy-in and improves confidence in road user and workforce safety, better serving its customers and the community.

"The biggest thing I've found with this entire journey is that legislation is there as a backstop but responsible industry players are doing a lot more than that," he said.

