

# Asset Management Challenges

*Utility grids face a host of asset management challenges as a result of the environment in which they operate. The question is always how we can mitigate the impact of these environmental conditions or events, be they planned or unplanned.*

**T**hemes arise from these issues including Network Resilience, System Hardening and Asset Life Extension. All have a particular narrative and commonality among utilities, and all are intertwined in the operation of a utility system.

TEN continues to lead and innovate this space working with global manufacturers on technologies that allow utilities to integrate these proven systems and solutions into their asset management framework. These products can be broadly considered as:

1. System Hardening – Polywater duct sealants, Hubbell wildlife protection, Genics wood preservative and fire barriers
2. Network Resilience – Polywater lubricants, La Granja Insulators and Tykoflex OPGW Enclosures
3. Asset Life Extension – Leak repair for oil filled and SF6 Equipment, Induron corrosion protection and Clampstar connector correctors

With a truly national supply picture and daily conversation happening at the coal face, we are close to the work practice and asset management challenges facing our industry. It's not just our Australia wide experience that our customers benefit from, it's our network of international suppliers that are meeting the needs of a global industry experiencing many of the same challenges we see here in Australia. It is these international connections and networks that have allowed TEN to introduce several key product lines to Australia.

## SYSTEM HARDENING

### **Polywater Duct Sealant**

The sealing of ducts against water ingress, gas and rodents can assist with the reduction of unplanned outages and ensure networks can continue to function especially in times of disasters like cyclones and abnormal rain events. The closed cell foam technology used by Polywater for this product provides 8m of water head pressure constantly and 21m intermittently, ensuring your critical infrastructure remains protected. Two-part foam base is mixed in equal parts as it is pushed through a mixing nozzle. When mixed and injected, the foam expands as part of an anaerobic chemical reaction and hardens, keeping water, acids, greases, gases, insects, and rodents out of the conduit. The foam has good wetting and adhesion to metals, plastics, and concrete. The foam is an excellent choice for all types of conduit seals with single or multiple cable entries as the sealant can work into gaps where other types of seals cannot. Coming in ready made kits this product requires very few tools to assist with the installation.

### **Hubbell Wildlife Protection**

Wildlife outages are unfortunately a regular occurrence whether out on a distribution line or inside a substation. Hubbell's product lines, Reliaguard and GreenJacket, provided an excellent mitigating solution to the coverup challenge. GreenJacket has been protecting substation infrastructure for over 20 years. This one-of-a-kind,

bespoke fit product is designed specifically to the substation ensuring that all the construction nuances are catered for in a complete cover up solution. Each Substation is measured to size and then molds are created for the bespoke fit, ensuring that all exposed parts are protected. Reliaguard was designed to be a true protective cover for the distribution line. Boasting the Reliatanium no-drip burn technology, this cover solution has been tested extensively to the IEEE1656 guidelines ensuring the cover up material will not burn or drip and start fires in bush fire prone areas. Designed to cover all types of fittings, insulators, pole top transformers and switchgear, lightning arrestors and as a deterrent for perching birds, Reliaguard has a solution for your distribution poles and hardware.

### **Genics FireMesh**

The unprecedented scale of bushfires in recent fire seasons across Australia, has highlighted the need for proactive wood pole life management in fire prone areas. Ultimately, preservation is key. Maintaining a functioning network amid a natural disaster is critical. Genics Inc sought to develop a pole protection product that was easy to apply, required

no ongoing maintenance, would not contribute to pole degradation over its life, and that provided superior fire mitigation performance. Genics Inc worked closely with many utilities and research facilities to bring Fire Mesh™ to the market. The Fire Mesh™ is a barrier designed to protect structures from wood burning and scorching. It is vital for a wood pole to achieve equilibrium and homeostasis with the climatic conditions associated with its placement, therefore, the best product solution is one that promotes air exchange and allows the pole to breathe. The Fire Mesh™ is designed with an open grid that allows visibility of the timber behind it, and most importantly, allows the pole to breathe. Combining state of the art polymers with innovative fire-resistant compounds, Genics Inc was able to create a very durable and high performing intumescent grid that has achieved excellent fire resistance in many standardised tests and controlled burns. There is also a favourable environmental and safety profile, the product is animal safe, there is no leaching of chemicals, and it is safe to handle.



### **Genics Wood Preservative Treatment**

The preservation of wood poles should be considered as a system. Genics has a solution that address each of the mould and decay degradation issues facing your wood pole network. Cobra Rods, CuB Liquid, Cobra Wrap and Cobra Cap are just some of the products in the range. If we look at combining these products for protecting and treating affected areas, this system maximises efficacy and extends the life of wood pole assets.

Genics scientific methods and extensive research have led to this environmentally friendly line of products. Wood protection isn't complicated, at least not for the asset owner. Genics has taken care of the science, creating an industry leading, complex Copper Borate synergy. The performance is unparalleled. Their products can be relied upon to provide superior defence against mould and decay, wherever wood is used, from power poles, and fences, to homes.

**Cobra Rods:** Internal Co-Biocidal Diffusible Rod for remedial and preventative treatment of timber utility poles and other wood structures. Boron and Copper complex, raw ingredients fused into an amorphous glass rod. The rods are hydrophilic and seek out moisture. Suitable for treatment of Basidiomycetes (Brown and White rots) and Ascomycetes (soft rot fungi).

**Cobra Wrap:** Is a long-lasting plastic wrap with rechargeable pads, offering a low-cost external treatment solution. The hydrophobic pads that are immersed in Copper Naphthenate (CuNap) solution, that acts as a physical barrier to the soil and provides the elemental treatment of copper to the face of the pole impeding soft rot.

**CuB Liquid:** Copper-borate is a water based liquid preservative that contains no harmful VOC's. The shock treatment is designed to be applied to poles exhibiting active rot. It is ideal for dry environments where very little moisture content is available for rod activation. Also ideal for above ground applications.

**Cobra Cap:** Is an easy to install, long lasting protective pole top cap. The Cobra Cap kit includes a hard durable plastic cap, two Cobra Rods and nails for the installation. Designed to be easily removed for the future replacement of the rods when required.

## NETWORK RESILIENCE

### **Polywater Engineered Lubricants**

Not all lubricants are created equal, in fact Polywater has over 40 different formulations of lubricants that have been formulated over the 50 years Polywater has been manufacturing. Polywaters lubricants have been extensively tested to IEEE1210 to ensure jacket material compatibility and will not compromise the cable jacket during or after the cables have been installed. Polywater understand the importance of cable installation, so much that they have amassed a large database of Coefficient of Frictions (CoF) during the testing of cable jacket and conduit material combinations. CoF being a key data input into the calculation of cable pulling tensions. This means that you can design and install cables maximising cable distance whilst minimising expensive pits and reducing potential failure points with excessive joints in cables providing an increased resilience to the network. The water-based technology is environmentally friendly and easy to work with and apply.



### **La Granja Insulators**

Steeped in history, La Granja have been producing glass disc insulators from the factory in Spain since 1932 whilst the area

has been producing glass since 1760. La Granja are an innovative manufacturer of the highest quality. From their raw material to the production process, to testing of product at multiple stages along the manufacturing line, and on to inspection, packaging and shipping – La Granja production is geared to ensure only the highest quality product reaches the customer. With over 100 million insulators installed worldwide across 100 countries, there are a multitude of references for failures less than 1 in every 10,000 installed discs. La Granja are invested in the development of new products including Silicon Coated Glass Disc Insulators. Ideal for high pollution, low or no washing, environmentally and aesthetically sensitive environments. The robotic silicon application method results in a highly adhered coating with superior hydrophobic properties to traditional glass discs.



### **TykoFlex OPGW Enclosures**

OPGW is a critical asset to transmission lines and high quality enclosures ensures this communication network continues to operate in any environment no matter how harsh. TykoFlex enclosures are IP69K rated, the highest available ingress protection rating, that meets the demands of our harsh and unforgiving Australian climate and conditions. The T240 TELECOMBOX is a lockable system made of acidproof stainless steel. The main benefits of the system are superior flexibility, easy handling, and tightness regarding overpressure and vacuum. Designed with the fibre installer in mind TykoFlex have created a product that takes the hassle out of installation and is able to be used with high fibre count fibreoptics using multicassette organiser technology. It can be installed in above and below ground situations even in waterfilled areas.

## ASSET LIFE EXTENSION

### **Polywater PowerPatch**

Ask any power utility if they have challenges with leaking power transformers or SF6 equipment, and you will be sure to receive an emphatic YES! Taking these transformers offline and conducting repairs or refurbishments is a costly and timely exercise. PowerPatch by American Polywater allows a fast and permanent repair solution to leaks in transformers fins, bushings, pipe seals, and SF6 gas filled equipment without the need to take equipment offline or introduce potential contaminants such as water or dust. There is an extensive cost saving benefit when utilised as an asset life extension solution verse traditional repair and refurbishment or replacement programs. If we take into consideration the costs of critical equipment shutdown and the environmental benefits, and PowerPatch quickly becomes a go to solution for asset managers.

### **Induron Corrosion Protection**

Corrosion to galvanised towers is not an "IF" outcome but "WHEN". With a large percentage of Australia's steel transmission towers built in the 70's, 80's and 90's, coupled with significant chloride exposure along our coastline, the corrosion management of galvanised steel lattice towers and poles in Australia is a significant



asset management challenge facing the transmission sector. Utilities have traditionally used zinc rich paints to maintain these structures. However, around 18 months into the life of a new structure, the negative electrical potential of the substrate is no longer suitable for "recharging". Galvanic protection cannot be achieved as the last phase of zinc corrosion creates zinc carbonate, which will not connect electrically. This necessitates the commonly adopted and costly garnet blasting requirement. Induraguard 9200 does away with the need for blasting. Induraguard 9200 is a one-coat solution for weathered galvanized and previously-painted structures. As a high solids, high-build, single-component, self-priming coating, Induraguard 9200 is extremely surface-tolerant and provides excellent wetting. This protective material can adhere to marginally prepared aged zinc carbonate (no oxide layer) to add a thick layer of barrier protection. Induraguard 9200 is a proprietary blend of Micaceous Iron Oxide, Modified Linseed Oil, Resin, Zinc Dust and Ceramic Pigments. Each component of this 5-way barrier protection serves a unique purpose in the performance characteristics of the coating on weathered steel structures. Induron have also developed a below grade barrier paint to protect the interface between above and below grade on steel structures.

**ClampStar**

In recent years the Australian power grid has seen a dramatic increase in overhead connector failures because of an ageing grid and stretched maintenance programs. Conductors and a well-maintained tower will generally outlast the connectors on the network. And with connectors typically designed to last 40 years, and many critical lines in Australia extending well beyond this age, the ability to apply a solution to the connector challenge can extend the line asset by up to 30 years, maximising its potential service life. TEN is proud to represent Classic Connectors in our region, their ClampStar® product provides an elegant, economical, and



easily installed solution for restoring the electrical and mechanical integrity of connectors without the need for costly re-stringing or remediation works. With over 1000 units installed in Australia, ClampStar® is well on its way to helping Australian Transmission Authorities extend the life of their networks.

We are focussed on bringing innovations to the Australian market in technologies that will assist utilities on protecting, managing and future proofing their network.

Contact Lindsay Taylor at TEN  
for further information on any of these products:  
[www.tengroup.com.au](http://www.tengroup.com.au) - 07 3212-8999

**TEN's ASSET LIFE EXTENSION SUPPLIERS**

