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Titan Newsletter

Overheard Lines from The Reliable Titan

*'The Bushfire Proof Titan is the Power Pole of the Century.
Titan Reliability is Guaranteed'*

Feature Article –

Titan Poles - The Most Economical Whole of Life Power Pole on the Market

Thought Provoking Industry Commentary

Dulhunty Poles always looks forward to receiving specific enquiries and or general comment from our regular clients or prospective clients on any Titan related matter.

We are particularly pleased to have received this enlightening comment from an

experienced Electricity Supply Industry (ESI) network manager, who self identifies as a previous Titan non-believer – and is now converted to a Titan enthusiast, after a more in depth consideration of the real value of a sustainable pole in their network. Consequently, this has reopened the debate on how false frugality can cause some network owners to actually increase long term network operational costs instead of aiming for a proven low-cost, whole of life network methodology.

There has also been a constant push from some government and industry-based organisations to keep network operating costs to a minimum as this is seen to cause a direct downward pressure on customers' electricity bills. This attitude is generally a credible outlook, however, where to continually achieve such future savings may not be so obvious and beneficial to network owners with widespread aging infrastructure.

There may be many areas for savings in the poles and wires network space, but it is suggested that the practice of favouring the cheaper initial cost of any non-sustainable pole against the long-term efficiencies of a virtually indestructible pole, does not fit well under the smarter, sustainable low-cost whole of life network efforts. The expected whole of life period with Titan is somewhere around 70 to 100 years.



The intention in this fire prone area appears to be to reintroduce this risk factor into the network, by reinstalling another wood pole supporting crucial operational equipment.

When the extensive ongoing cost of inspection and maintenance of the cheaper non-sustainable poles is considered against the no maintenance for life future of the Reliable Titan, the positive case for the sustainable Titan pole is amplified much, much further - as our every growing ESI satisfied client base supports.

False Frugality

The main spontaneous rejection put to us by Titan non-believers, is that of the initial cost of the Titan compared to that of other cheaper pole types.

As our above converted correspondent reinforced, their previous so-called economically cautious approach, was closer to one of immediate short term commercial planning, where long term whole of life investment into the future stability of the network, did not play a significant role in the initial debate. Unless the whole network big picture is considered, the outcome could readily come under the false frugality label, where history may well prove cheaper value is not always best.

It follows – and this was our correspondents main awaking - that the poles and wires network really is the long term foundation of the distributor / transmission business – and failure to support the longevity of that network, is akin to ignoring the fundamentals of the business. Usually, in time catch-up policies in maintenance then replace what should have been a genuine reliable, pragmatic, and proven low-cost, whole of life decision to protect the network and the business.

Through Titan usage, Dulhunty Poles are trusted by our clients to assist in their obligation to ensure the long haul strengthening and reliable longevity of their network, and thereby the financial operational base of the business.

About the Titan

Titan Poles are the lowest cost whole of life quality pole currently available in Australasia and Dulhunty Poles have been proudly boasting this fact since 2011. This claim is essentially supported by the maintenance free expected life span of 70 to 100 years - some believe it could even be longer.

The other many positive factors supporting this claim have been put forward

publicly on previous occasions via the Titan Newsletter and we have devoted this Titan Newsletter to assemble abridged versions of those major points below.

? Did You Know?

All previous Titan Newsletters are accessible on the Dulhunty Poles website under the News tag.



One of our clients' recent Titan transmission structures.

Creating The Reliable Titan

The Titan is a bushfire proof, innovative, engineered fibreglass reinforced cement pole and has been manufactured under patent in Australia since 2011. The original design and product intent was for power poles and marine piles, given that's where the market demand and focus was at that time. Titan has since offered its products to other industry sectors.

Titan products are made principally with cement and calcined kaolin clay (Metakaolin), with continuous alkaline resistance fibreglass rovings providing the ultimate in bi-directional strength. They do not contain sand, metal, or stone, (or any other type of concrete aggregates), will not rust or spall and electrical leakage currents are demonstrably less than for a spotted gum hardwood pole. Consequently – the Titan pole is NOT A CONCRETE POLE!

The Titan manufacturing process is governed by computer-controlled equipment. All pole designs are reviewed and locked in by our design engineers, eliminating any possible accidental and inappropriate human intervention in the manufacturing procedure.

Durability and Useful life.

The Titan Durability Review report (found on the Dulhunty Poles website www.dulhuntypoles.com under the Technical Information / Durability tag), shows that the materials used in the manufactured Titans are characterised by exceptionally long potential service lives.

Consequently, Dulhunty Poles are confident that once installed, Titans can safely and reliably continue to perform their specified purpose (be it overhead line conductor support or equipment installations) for at least 70 years, or more.

As the materials and the manufacturing process of the Titan have not changed since completion of this Durability Review, we declare this report still valid and applicable to the Titan products in general.

Titans are unique throughout their installed long life in being –

- bushfire proof, thus not requiring replacement after bush or scrub fires.

- waterproof and can be used in wet / hostile ground and marine environments.
- rot proof and vermin proof, require no dangerous insecticide or fungal decay-resisting chemicals.



Introducing durability into the network with a 2 part bushfire proof Titan replacing fire destroyed timber poles in a fire prone area. A perfect example of the United Nations, Build Back Better policy

Managing Pole Exposure to Risk

Experience dictates, that the general and typical risks for power poles to endure, would include the following types of hazards/consequences –

- Bushfires
- Pole top fires
- Fungal decay
- Weather damage
- Termite and other debilitating insect/vermin infestation
- Corrosion from saline or damp soil conditions, sea air spray

Obviously, the best methodology in managing these risks, is to invest in a pole population that is not susceptible to any of these general risks. The Network Reliable Titan was specifically and astutely designed to counteract all the above general risks and with many other added low-cost, long-life complimentary features to boot.

There is another risk to the network however – not a practical or physical risk like the above six – but probably more serious and ultimately more expensive. That is, the risk of complacency; complacency in accepting what is out there supporting a network of high voltage power lines, is the best-known option available to manage the general risks and safeguard the network's reliability and the distributor's investment.

A powerline is designed as a permanent asset structure for many, many years, so any materials with the guaranteed longest life and lowest whole of life cost features, should be the only choice.

There is no better way to manage risk in any situation, than to eliminate it.

Build it once in a lifetime with Titan.

Environmental Credentials

Dulhunty Poles are passionate about the Titan's outstanding environmental footprint and we direct readers to the carbon footprint analysis of traditional power poles conducted by Ipernica Ventures Pty Ltd. Complete report is

available on the Dulhunty Poles website www.dulhuntypoles.com under the Technical Information/Environmental tag.

The seven pole types examined in this review were –

- Wood - Treated CCA Eucalypt
- Steel Reinforced Concrete
- Galvanized Steel
- Stobie – Concrete and Steel
- Fibreglass Reinforced Plastic (FRP) – Polymer Resin and Glass Fibre
- Fibreglass Reinforced Cement (FRC) – Titan
- Wood – Steel Composite

Ipernica concluded that the (Titan) FRC composite pole had the lowest carbon footprint of all pole types in use in Australia at that time, based on a 70 year life cycle. We are not aware of any modern day pole type to challenge this result.

Titan Pole Design

Dulhunty Poles have successfully strived for, and achieved excellence in the design and manufacture of the lowest whole of life cost for a pole structure supporting distribution and transmission overhead lines and the associated installed equipment of substations, switchgear / protection devices etc. All designs are subjected to applicable industry standards and are assessed by Finite Element Analysis (FEA) before construction of prototypes.

In addition to industry standard sizes, the Titan can also be manufactured to meet acceptable design parameters specified by the purchaser. Our engineering sector are always keen to discuss client's specific requirements.

Successful designs are supported by an extensive catalogue of original and ongoing testing programs that not only ensures the Titan follows strict formula being the basis of manufacture, but all new manufactured prototype poles are subjected to a rigorous strength testing proving regime, prior to being released.

Testing

To remain the industry leader, in any field, an ongoing and all-encompassing products and processes testing regime should be a critical part of the

infrastructure. From inception, Dulhunty Poles have persisted to operate under a regular, rigid testing regime covering all aspects directly related to producing a worldwide accepted product - the Reliable Network Titan composite pole.

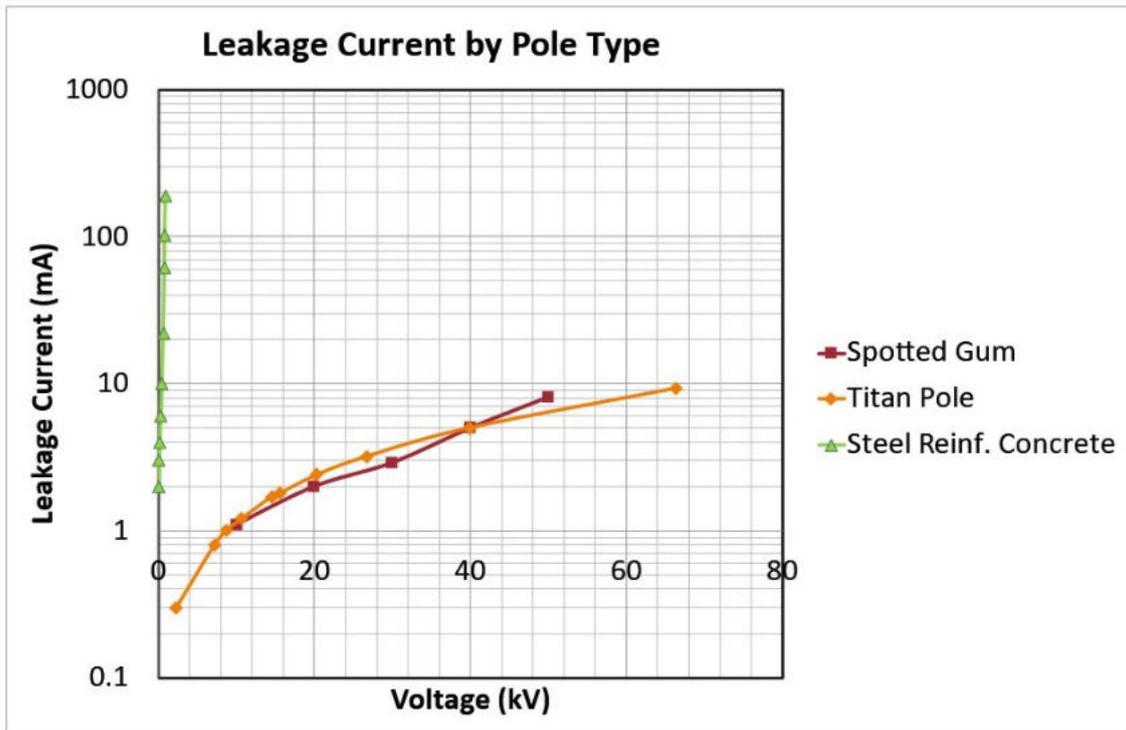
All aspects of our operations are covered by our testing regime, from incoming components and raw materials, right through to the completed products.

Testing of Titan power poles to determine strength and deflection rating is defined by AS/NZS 4676 and AS/NZS 7000.

Other testing procedures carried out against the particular valid standards have included -

- Electrical
- Pole strength & deviation
- Equipment fixing incl pull through tests for various hardware fittings.

Some brief illustrations of Titan's testing regime appear below.



A Titan pole top bracket strength test.



A 3 part Titan in strength & deviation testing.

We can also test for resultant strength on installed Titans that may have been exposed to a bushfire. A recent such test proved that all tested Titans installed in 2013, tested still fit for designed purpose. Moreover, all had actually increased in strength from installation date by a substantial margin due to ongoing in-field curing, indicating that Titans are the only known power pole that does not start to deteriorate the day it is installed.

Bushfire Proof.

The Reliable Titan is bushfire proof. In the Australia rural environment, Titan designers understood fire retardant / fire resistant treatment won't provide adequate protection in a typical bushfire – it has to be fireproof.

The Titan will not melt, buckle, burn, spall, or distort in a bushfire - and that applies to the entire pole. The Titan will still be standing after the fire has passed.

Our claim of the Titan Pole being Bushfire Proof is backed by the Energy Networks Australia (ENA) Pole Fire Test, where the Titan was exposed to two consecutive heat sources equating to a heat flux in excess of 1200°C, being the maximum test equipment temperature available. This temperature is also considered by Australian bushfire behavioural experts, as representative of the maximum temperature measured in a high intensity bushfire. The Titan achieved the highest available ENA test rating of 'Excellent'.



T = 7 min



Photos of 7 minutes into the ENA Test with ring burner ignited, as well as radiant heat applied, and the resultant Titan sample showing no distortion of any kind – only shallow cosmetic effect.

Titan material has also been subjected to a UL 94 flammability test, proving its flammability resistance.

Both reports are on the Dulhunty Poles website www.dulhuntypoles.com under the Technical Information/Fire Tests tag, which reveals the appropriate Fire Tests results.

The fireproof feature emanates from the construction material of the pole – it is not a separate expensive add on treatment. Titan fireproofing feature is part of the Titan pole cost and will last for the life of the pole.

Strength to Weight Characteristics

Titans' high strength to weight ratio makes them lighter than all fireproof poles designed for an equivalent specified purpose.

Thus, they are less costly and safer to handle, to onload and offload from vehicles, to handle/store in depots and yards, to convey to deployment sites - many of which will be challenging of access, and to lift into final position. Each of these moves in general will require less personnel, smaller vehicles for transport and smaller lifting devices for handling.



For deep bush installations requiring helicopter lifting, smaller aircraft can be used with faster turnarounds.

Conductivity

Titans have electrical conductivity characteristics broadly similar to a CCA treated wood pole, thus considered non-conductive and much safer electrically to work with in the field. See graph under Testing above.

Being non-conductive, Titans also require no earthing installations and could be suitable for many situations where other pole types cannot provide this element.

Ongoing Inspections

In the main, the overhead line inspection process is usually deemed necessary by network owners to be conducted at differing intervals, no matter what pole type is used. Thus, that activity cannot figure in any pole comparisons however, Titan can streamline this process. Every Titan pole includes an embedded uniquely coded Radio Frequency IDentification (RFID) chip at approximately chest height, after pole installation. The RFID is not exposed to weather or fire ensuring ongoing identification for the life of the pole.

This device ensures that no Titan can be bypassed in a whole of overhead line section inspection. In appropriate cases remote inspection can be carried out using purposed drones fitted with a card reader and camera.

There is no requirement for groundline preservation treatment chemicals of Titans ever. The full above ground pole section can be visually inspected through the above-mentioned means.

Dulhunty Poles do not stipulate any period between the actual inspection of the Titan pole, as there is no deterioration of the pole's material to be expected. The only physical damage would likely be inflicted from external means – say, a falling tree branch, heavy vehicle impact. Even then, there are also Titan Repair Kits available for in-situ repairs.

Summary

Dulhunty Poles believe the economics of power pole selection are simple – it's just a matter of value for money.

We produce a high-quality pole product at the best competitive rate we can, which then supports the client's low cost, whole of life network outcomes. This then transposes to not only maintaining the long term integrity and value of the network, but also enhances the overall business model.

As discovered by our converted Titan enthusiast above, false frugality may lead to a very expensive underestimation for the ongoing value of the network and the business.

Install a Titan for once in a lifetime.