

DULHUNTYPOLES



## Titan Newsletter

Overheard Lines from The Reliable Titan

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

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## Q&A Opportunity

Australian made Dulhunty Poles continue to provide the opportunity for Newsletter readers to access more Titan related information, or provide any comments they see fit to forward, through the enquiries email [enquiries@dulhuntypoles.com](mailto:enquiries@dulhuntypoles.com) One of our team will respond as soon as possible to the individual email address provided. All your contact details and the related correspondence will be treated with the utmost privacy protection.

### ? Did You Know?

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

## The Birth & Annals of The Titan

Dulhunty Poles Pty Ltd founder, Philip Dulhunty OAM, amassed a long history of successfully supplying a wide range of products to the broader Electricity Supply Industry (ESI). These products included wood poles - from natural round in the early days, right up to creosote and CCA treated poles and associated support products. Philip certainly understood powerline poles.

In the early 2000's Philip realized that the Australian ESI was in dire need of extremely reliable, bushfire proof, low maintenance and engineer designed power poles; that would also be readily available.

Availability of the long used Australian hardwood poles were now limited and were very high on in-service maintenance, with regular durability inspection visits and preservative chemical treatment for fungal decay and insect infestation required for a lifetime of the pole. Softwood poles seemed to be the answer for some ESI distributors, but the many negative reliability and durability issues remained. Manufactured pole materials being offered at that time also didn't seem to meet the overall ideal durability and long ESI in-service life needs – in addition, none demonstrated suitable environmentally friendly features.

## Security of Supply

No one in the ESI product merchant ranks seemed to be doing anything tangible to meet this 'perfect pole' need. Concerns around the security of network distributors' supply through lack of infrastructure reliability was rapidly becoming the status quo. A solutions framework was required.

After due consultation with knowledgeable industry devotees, Philip decided to meet this challenge head on through the parent company Dulhunty Power. His initial reliable pole material shopping list read something like this –

- Needs to be an engineered product therefore of a composite material
- Proven reliable with a long in-service life withstanding all Australasian conditions
- Low, or preferable no in-service maintenance requirements
- Bushfire proof to withstand high intensity bushfires and remain fit for purpose
- A preferred low carbon footprint
- Impervious to fungal decay, insect attack, and all forms of corrosion
- Unaffected by saline ground conditions and wet feet
- Hollow construction protecting internal cabling, batteries storage and more
- Non-conductive to protect against pole top fires and assist in worker safety
- Lightweight and easy to handle in storage and in field installation operations.

The exciting outlook in achieving all these requirements was – the resultant pole would obviously be the lowest lifetime cost pole in existence.

After much researching, Philip had an 'Aha moment!' This epiphany was in finding the ideal composite technology in the USA. Consequently, after some initial research, in 2009 the Dulhunty Poles company was formed and the Titan Pole was born. The purpose-built Titan Pole factory was then constructed in Geelong, Victoria, developing the technology into producing prototype Titan poles.



Construction from basic framework, through to building the Titan Pole manufacturing equipment.

### Essential Testing & Proving

Extensive testing and analytical studies on the prototype poles continued in earnest - including bushfire proving, strength and flexibility/deviation tests, durability, carbon footprint, conductivity, and much more, all directly related to suitability for the Australasian ESI. Consideration at that time was also given to Titan marine use.

All such findings were positive, thereafter, full manufacturing of the fiberglass reinforced cement Titan Pole for industry commenced under an exclusive patent license.

With the expected Titan service life indicated to be between 70 to 100 years, the shrewd, look to the future logicians in the ESI, thought this Titan composite pole was the answer with all of Philip's shopping list achieved – and a few more items such as embedded RFID electronic pole identification feature, added for good measure.

### Original Objective

As indicated above, the Titan pole was originally designed for ESI overhead conductor and equipment support needs. The standard ESI distribution sizes (height and strengths) were initially manufactured to service this market. Uncommon, special order ESI sizes were being requested and produced to fit the purposes. Dulhunty Poles adopted finite element analysis (FEA) for all pole designs and each resultant pole delivered carries with it a design certificate backed by 100% type testing.

### Product Design and Development

All individual Titan designs (from one part up to three parts), are developed by our inhouse engineering staff, scrutinized against the stringent FEA requirements

and then programmed and subsequently locked into the unique computer controlled manufacturing system. This system eliminates any accidental human adjustment/interference – meaning all Titan poles produced from a particular design criteria, will be guaranteed identical in every way.



Commissioning the first Titan manufacture controller computer system.



The Titan manufacture control unit operating with progress monitor.

Titans then quickly moved to extensive marine use, mainly for wharf and jetty support piles, markers, and general marine construction. (See ideal example in Elstone Diving story below). The Titan's enviable low carbon footprint and resistance to saline foundations have proved invaluable in this environment.

#### Where We Are Now

The Dulhanty Poles Titan factory has developed into a top class manufacturing complex with enormous capabilities to successfully service all related industry support structure requirements.



Current factory with Titan stocks ready for client dispatch and Titan manufacturing in full swing.

The factory has, over the years, expanded the whole range of ESI support applications to now offer Titans for - distribution substations/switchgear supports and all types of equipment poles, zone substation switchgear and busbar support structures, customer service private poles, security systems, sport and general area lighting standards, solar farm support structures, remote sensors and more.

Titan marine use range has also grown and Dulhunty Poles can consider all requests and apply the necessary industry standards engineering criteria for suitability of proposed/requested purposes.

Other Titan applicable industries now include, electronic tele communications, horticultural net supports, aquaculture, landscaping, fencing, stock shade supports in sale yards and feed lots, general rural support buildings construction and much more.

This varied product range is supported by our manufacturing output increasing by around 20% in the last 12 months to date and poised to trend beyond that by years end.

#### Our Current Testing Regime

Dulhunty Poles, right from the start, have been an organization backed by a wide ranging and reliable testing regime in everything we manufacture.

We inspect all incoming components we use in Titan manufacturing to ensure the expected quality is consistent. Included in this component's scrutiny are

sample testing at different stages of core constituents that make up the Titan production matrix.

Hundreds of full-scale Titan Pole destructive tests have been carried out by Dulhunty Poles to prove design and production methodology of poles. All such tests abide by AS/NZS 7000 & AS/NZS 4676 and strength rating is statically determined by test results being applied to COV and SRF as per Section K & Section 7 in the standards.



A 3-part Titan under strength and deviation testing.

Other major tests in the Titan proving mix include Bushfire Proof testing, Environmental, Electrical Conductivity, Equipment Fixing Strength, Ongoing Strength Testing and significantly more.

Ongoing In-Field Strength Testing is a unique test available from Dulhunty Poles which determines the current strength of an installed in-field Titan and is part of our pre and after-sale customer service as required. This test uses a specially designed Impact Rebound Hammer (IRH) to determine ongoing strength of a Titan Pole. The below test result graph came from a follow up test report on a client's trial installation some 7 years after installation. The report recognised this same pole had been subject to a bushfire some months prior to test.

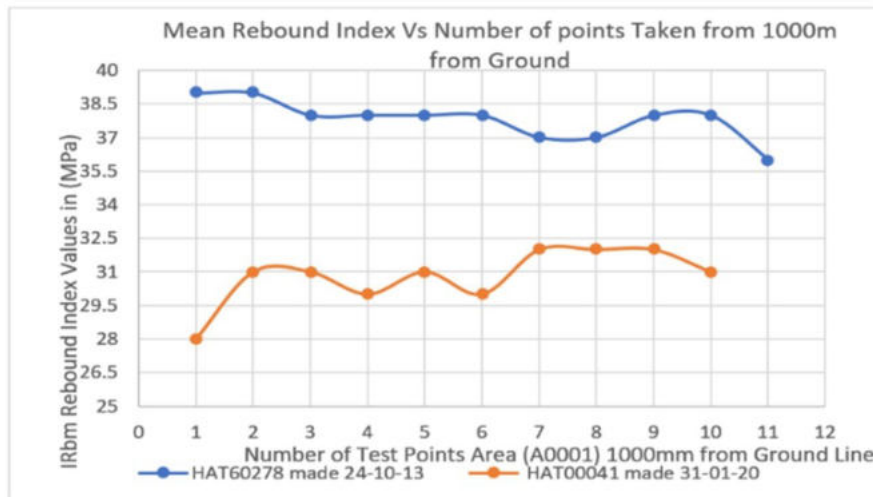


Figure 1: HAT60278-Fire exposed KV Pole & HAT00041 Newly Made Mapped Pole @ Moolap Factory facility. The graph shows an increase range of IRbmd of 4.5Mpa – 10.5Mpa approximately.

Being an engineered product, the Titan can be manufactured to a clients' specific design criteria, however all the appropriate tests must be validated prior to the Titan product being delivered.

To further validate our analysing / testing systems, at random intervals an Independent Professional Engineer is engaged to assess the soundness of the methodology and that all details concur to the relevant guidelines/standards. This a major part of our ongoing Quality Assurance success.

Our engineering team are delighted to discuss any tests clients may require to satisfy their needs; contact us through the Q&A email details above.

As is demonstrated briefly here, Dulhunty Poles have come a long way since our founder's initial 'aha moment!' However, we are determined to continue streamlining the Titan product manufacturing process even further. It is really a case of 'Watch this Space' – continuously.

## ? Did You Know?

Dulhunty Poles manufacture and stock, ESI standard sized power poles, in addition our engineers always welcome enquiries for the 'not so standard' Titan units.

Dulhunty Poles are the home of innovation.

### **Elstone Diving Services Driving Home Benefits of Titan Marine Piles**

Elstone Diving Services Pty. Ltd, based in Drysdale Victoria, provide a wide range of marine construction and commercial diving services mainly in Victoria. Established for over 30 years, their broad scope of services includes, but not limited to –

- A variety of commercial diving services
- Pile driving, installations and repair
- Wharf and jetty construction and maintenance / repair
- Boat ramps and slipways construction and maintenance / repairs

Elstone possess a large range of specialist plant and equipment and qualified operational staff in all applicable fields.



EDS Barge Eureka, ready to load the next batch of Dulhunty Titan Piles for installation.

The Elstone team recently installed a 12.5m, 24kN Titan fiberglass reinforced cement pile at Grassy Point in Port Phillip Bay, Victoria.

Elstone's Project Manager Scott Lakey explained, "The pile was hammered in approximately 5.5m into a hard seabed that is sand, iron stone pebbles and a shelf of iron stone sand, with clay underneath. The driving conditions were hard with the initial hammer blows only moving the pile around 50 to 75mm. Once we broke through the shelf and got into the clay, we could get approximately 100mm movement per blow until finally the pile pulled up."

"Using a driving helmet, we hit the pile around 300 times with a 2.5t hammer, as can be seen in the photo."



**Elstone's 160 tonne capacity deck loading barge, with mounted pile driving rig installing the Titan Pile.**

Scott further reported to us, that on installation completion when the driving helmet was removed, the Titan Pile top itself had no damage, no cracking, no fractures, or any other obvious detrimental issues.

“This is a wonderful testament to how good Titan Piles are and how well they behave in installation. A concrete pile would have had broken pieces, cracks and would definitely be showing impact damage. We have sent photos of this project to our clients to show them that there is a genuine alternative to timber, steel and concrete marine piles that will outperform all these over a much longer life as well.” Scott concluded.

In all projects, either on land or on water, Elstone Diving Services are committed to providing professional services that are well within all necessary statutory requirements for all provided works, across their wide extent of skills and well proven abilities.

In response to this Grassy Point report, Dulhunty Poles’ Sales Engineer, Bez Falahati said, “We greatly appreciate this positive, detailed, and expert report from Scott and sincerely look forward to providing more positive outcomes for Elstone through the Titan Pile. This pile driving project is proof of how well our Titan Poles and Titan Piles perform under vertical loads. Being struck around 300 times using a 2.5t pile driving hammer whilst being driven into the hard seabed, and still remain in perfect condition, should respond well to all those people who are concerned about axial loads on Titans.”

With Elstone Diving Services core business being in wharf carpentry and all forms of marine construction, Titan Piles are the perfect partner with their suitability in saline conditions, no harmful chemicals to leach into waterways, leading to a low carbon footprint and a low whole of life cost.

Elstone’s full brace of services can be investigated through their website – [www.elstone.com.au](http://www.elstone.com.au)

Contact details are below

**Phone/Fax:** 03 5253 2777

**Mobile:** 0418 599 397

**E-mail:** [projects@elstone.com.au](mailto:projects@elstone.com.au)

### ? Did You Know?

the Reliable Titan's primary ingredients are special alkaline resistant fiberglass rovings, cement and calcined kaolin clay also known as China Clay which is an essential ingredient in the manufacture of china dinner sets and porcelain.

### **Further Endorsement on Titan's Environmental Footprint**

We have recently witnessed renewed public interest in the concerning adverse environmental impact caused by the Electricity Supply Industry (ESI) in some quarters and we are asked what is being offered to assist nationally at this time. Subsequently, we have once again been (strongly) encouraged by Titan fans, to effectively rerun the Titan Poles Environmental Footprint message piece we broadcast in the September 2021 Titan Newsletter and made further mention in December 2022 Titan Newsletter.

It is suggested we should circulate this information more often – accordingly we are delighted to accommodate this request here.



As mentioned in the above Birth and Annals of The Titan article, prior to investing in Titan pole manufacture in Australia, then parent company Dulhunty Power carried out a raft of concerning investigations. Part of this process included commissioning an independent Environmental Impact Study (EIS) before committing investment funds to the project. The study was undertaken by internationally respected consultancy company Ipernica Ventures Pty Ltd.

### Five Key Stages of the EIS –

The study terms of reference were:

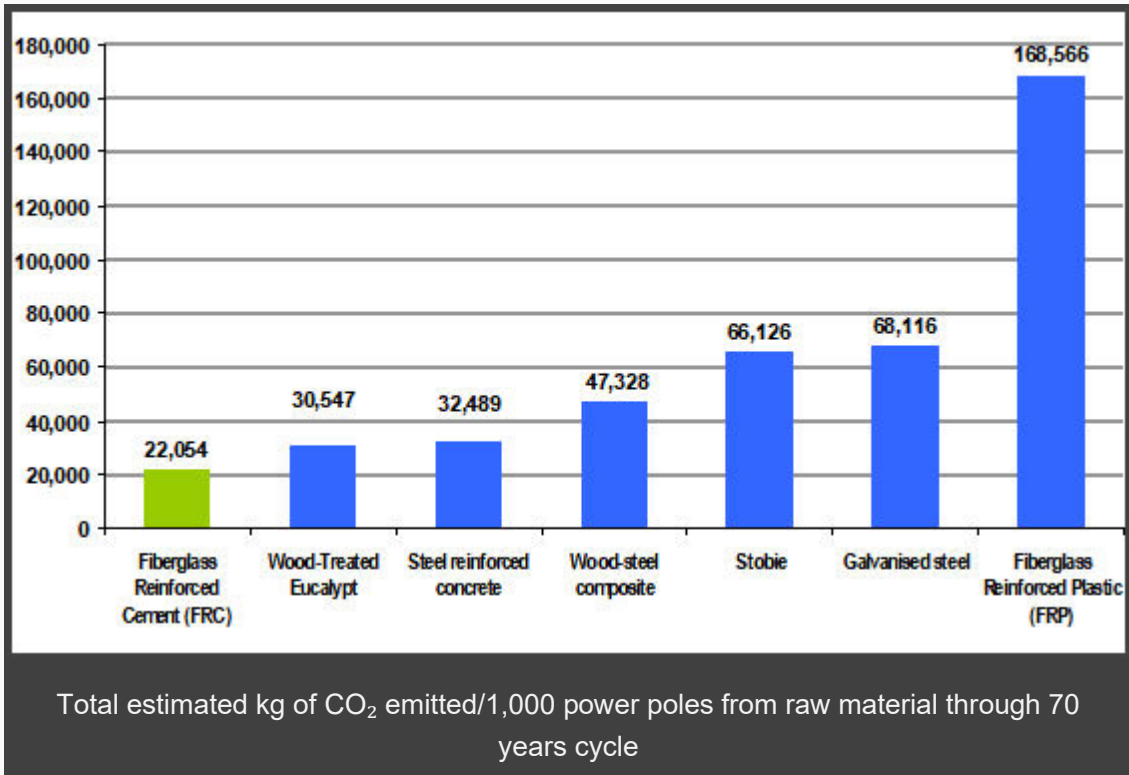
‘To compare the total estimated carbon dioxide (CO<sub>2</sub>) emissions of seven different types of power pole found in Australia across five key stages being:

1. Raw materials - The key components of each power pole.
2. Manufacture - The inputs into the production of each power pole.
3. Installation - The inputs into the delivery of the finished poles and installation of each power pole.
4. Maintenance - The inputs into the maintenance of each type of power pole.
5. End of life - The inputs into the removal and subsequent disposal of each type of power pole.’

The seven pole types examined were –

- Wood – Treated CCA Eucalypt
- Steel Reinforced Concrete
- Galvanised Steel
- Stobie - Concrete and Steel
- Fiberglass Reinforced Plastic (FRP) - Polymer Resin and Glass Fiber
- Fiberglass 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. Ipernica’s report on Carbon Footprint Analysis for wood and alternative power pole types used in Australia can be located on the Dulhunty Poles website at: [Dulhunty Poles | Environmental](#)



**Notes to Bar Chart on page 12 of above-mentioned report.**

The chart extrapolates the chart on page 11 of the same report with all life cycles extended to 70 years, inferring replacement of poles with expected lifetimes of 50 years.

This allows uniform comparison of the carbon emissions. The Dulhunty FRC pole on a 70-year projection, clearly results in the lowest emission footprint.

A recent environmental review confirms Ipernica's findings remain valid today. Titan's raw materials and manufacturing processes remain essentially unchanged; meantime progressive manufacturing equipment improvements continue to be made.

Dulhunty Poles are dedicated to achieving optimal environmental targets.

### Get a Better Feel for the Reliable Titan

Dulhunty Poles offers free Titan samples as an attractive desk-top pen holder to those interested. The samples illustrate Titan's lightweight fireproof features, natural robust structure and ready drill-ability.



If interested in obtaining one, please simply reply to this email and provide your name and a postal address to receive your free sample.

