GRP: The Hidden Opportunity

"In the world of smart metering, we obsess over the latest technology inside the box; yet we rarely stop to consider the box itself.

What if I told you that the very material housing our smart meters could be the key to longer lifespans, better network reliability, and lower maintenance costs?"

Glass Reinforced Polyester (GRP) is that material.

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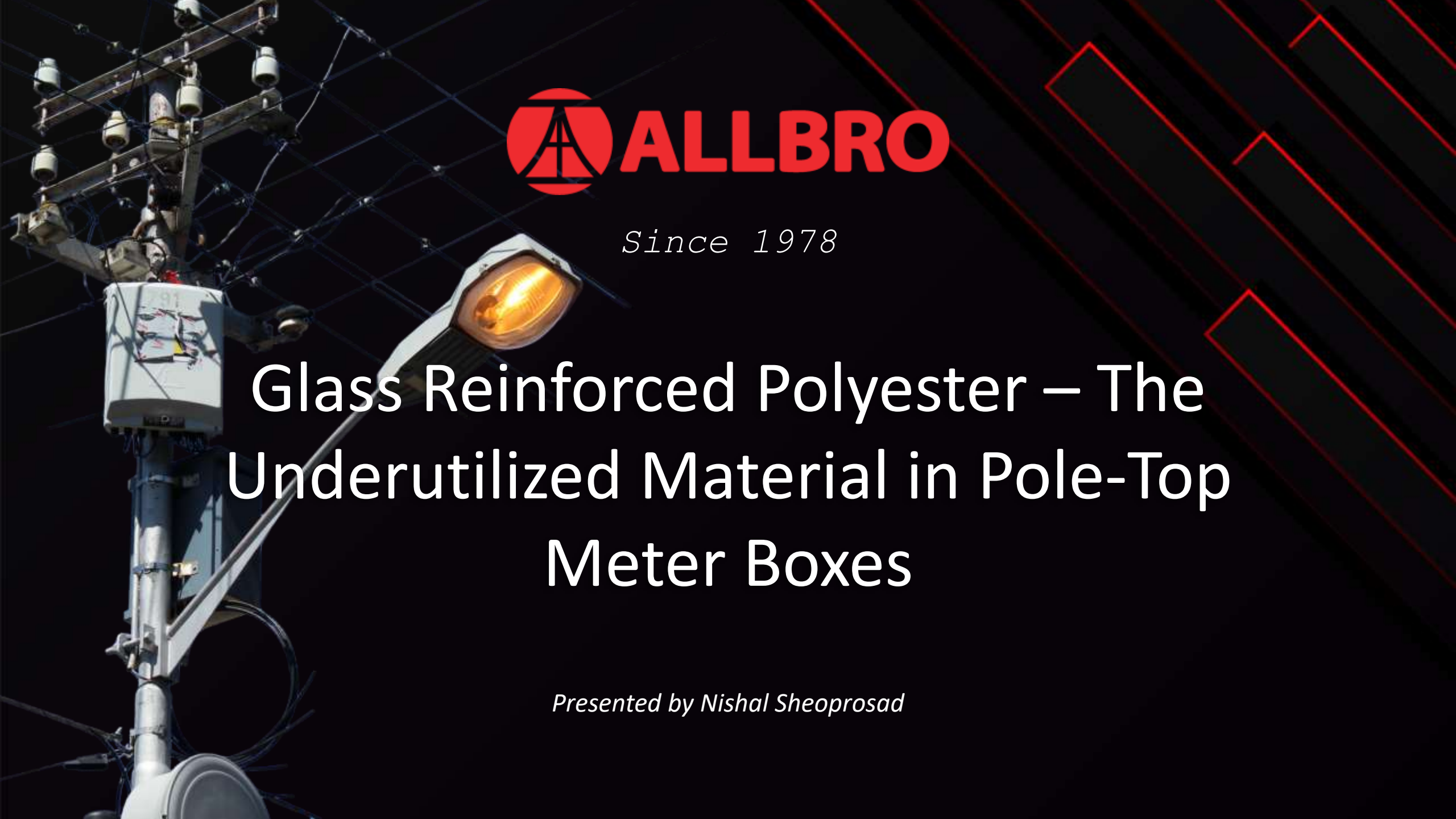

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Since 1978

Glass Reinforced Polyester – The Underutilized Material in Pole-Top Meter Boxes

Presented by Nishal Sheoprosad

What is GRP?

(Glass Reinforced Polyester) GRP is a composite polyester material made of a durable resin with high-strength glass fibres embedded in.

It's commonly used in aerospace, automotive, and marine industries due to its strength-to-weight ratio and resistance to environmental stressors.

Despite its proven benefits, GRP remains underutilized in pole-top meter enclosures—especially in Africa.

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Why GRP matters?

Utility engineers face three major challenges with pole-top meter boxes:

1. Harsh Environmental Conditions (UV, heat, rain, corrosion)

2. Flammability Risks (Temperature rise in plastic enclosures)

3. Long-Term Cost Efficiency & Maintenance

GRP directly addresses all three issues.

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Environmental Challenge (UV, heat, rain, corrosion)

TABLE 2
DIRECT CORROSION COSTS BY INDUSTRY IN U.S.

Industry	1998 Costs	2013 Costs
Utilities	$47.9B	$197.8B
Transportation	$29.7B	$122.6B
Production and Manufacturing	$17.6B	$73.0B
Government	$20.1B	$83.2B
Infrastructure	$22.6B	$93.5B
Total	$137.9B	$570.0B

Corrosion Reduction in Power Distribution, Jesse W. Taylor, Ph.D - Eaton PCIC-2017

- Unlike Mild Steel or 3CR12, GRP does not corrode in coastal conditions. Resists damage from pollution, acid rain, and industrial chemicals.
- No warping, colour changes or cracking like plastic alternatives.
- Unmatched Durability: GRP withstands extreme heat, UV radiation, and Abrasion from sandstorms — Ideal for Namibia's climate.

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Flammability Risks

- Plastics like Polycarbonate and Polyethylene in its natural states are flammable.

They need halogenated additives to slow down the spread of fire: Like brominated flame retardants (BFRs) - often criticized due to environmental concerns.

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Grenfell Tower: Polyethylene cladding on scores of towers

24 October 2017 Share Save

Ed Davey

Among the reasons for the deadly spread of the fire was the combustible cladding which had been installed during a renovation of the property in the years prior. This consisted of aluminum sheets bonded to a central plastic core. The highly combustible polyethylene ignited quickly, causing a rapid and uncontrollable spread of flames throughout the building.

Fire safety expert Arnold Tarling, a chartered surveyor, said: "It's like cladding your home in solid petrol.

- GRP mitigates this risk as it's inherently a flame-retardant material.
- Passes the IEC 60695-2 glow wire test at 960 degrees.
- Rated V0 according to the UL94 flammability standards – Self extinguishing.

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Long-Term Cost & Maintenance

- GRP assures Long-Term Cost Savings and Lower maintenance costs over time. UV stable for 25-years.
- Unlike metal enclosures, GRP is non-conductive — Eliminates shock hazards. Reduces short circuits and fire hazards.
- Extended enclosure lifespans means; Less down time, Fewer replacements and Minimal on-site interventions — critical for large-scale smart metering projects.

Addressing Common Misconceptions

🚫 "GRP is too expensive."
✅ While the initial cost may be slightly higher than plastics, the long-term savings on maintenance and replacements of steel and plastics make it more cost-effective.

🚫 "Is GRP strong enough?"
✅ GRP is a thermoset polyester, making it as strong as steel in many applications - while being lightweight and impact-resistant.
✅ IK10

🚫 "Does GRP degrade over time?" "What about the pluming effect?"
✅ Unlike plastic, GRP does not become brittle over time and maintains structural integrity for decades.
✅ The 'Pluming Effect' has been solved with the development and application of Allbro's Allguard Coating.

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Case Study: GRP in Action

📌 South African Utility Success Story

eThekwini Municipality in KZN, A major South African utility transitioned over 16 years ago from metal enclosures to GRP for pole-top boxes.

Results:

- ✅ Reduced maintenance interventions by 30%
- ✅ Improved network uptime, due to reduced equipment failures
- ✅ Reduced maintenance costs with fewer incidents of meter tampering

💡 Could Namibia be next?

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Global trends in GRP Meter Boxes

Adoption of GRP in Utility Infrastructure

- UK & Europe: GRP is widely specified for electrical and meter enclosures due to the stricter fire safety & safety regulations since 2018.
- Australia & USA: Utility companies increasingly favour GRP for smart metering due to weather resilience and zero Faraday Cage Effect.
- Southern & South Africa: Allbro leads GRP solutions into the Utility and Mining sectors. Over 10 million GRP enclosures deployed since 1969.

Yet, in Namibia and many parts of Africa, GRP remains underutilized — This presents a feasible opportunity!

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Why Now? The Urgency for GRP Adoption in Namibia

- Rural electrification projects on the rise
- Smart metering is expanding rapidly.
- Grid resilience is a growing concern in extreme weather conditions.
- Utilities must balance cost, performance, and long-term sustainability.

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It’s time to rethink how we protect our smart grid investments.

GRP isn’t just an alternative—it’s the future of pole-top metering solutions.

Let’s discuss how GRP enclosures can enhance the reliability and cost efficiency of your municipality.

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THANK YOU