PURE RESOURCES LIMITED | ASX:PR1

CNTF Weight Advantage: A Fraction of the Weight of Copper and Aluminium, Opening Additional AI Infrastructure and Target Industries Including Drones & Robotics

Further to the Company's announcement confirming single CNTF thermal conductivity exceeding copper and aluminium, Pure reports the weight comparison: Carbon Nanotube Fibre achieves equivalent thermal performance at up to approximately three (3) times lighter than aluminium and five and a half (5.5) times lighter than copper, while end user engagement and United States Government funding initiatives advance in parallel.

HIGHLIGHTS

- With copper level thermal transport already established in a single Carbon Nanotube Fibre, CNTF's have measured to **deliver that performance at approximately half the density of aluminium and roughly one sixth (1/6th) the density of copper**, multiples of the heat transfer of either metal on a per unit mass basis.
- Lower weight is now a primary design constraint in AI compute, defence, aerospace systems, drones, robotics and batteries where thermal management applications mass directly limits power density, payload and platform performance.
- On a system level, **CNTF thermal management applications architectures target up to approximately 3 times lighter than aluminium and 5.5 times lighter than copper for equivalent thermal duty**, combined with flexible, textile processable 3D geometries unavailable to conventional metals.
- Early engagement underway with hyperscale data centre operators, defence primes and advanced electronics manufacturers, with discussions covering jointly funded development, prototype evaluation and integration testing into customer thermal envelopes.
- Active United States Government funding strategy progressing across Department of Defence and Department of Energy aligned programs.
- Structured value pathway: four stage data release program advancing, with thermal conductivity and weight efficiency results now released, ahead of thermal anisotropy and system level heat performance testing.

ANNOUNCEMENT

CNTF weight advantage: equivalent thermal performance at a fraction of the weight

*Pure Resources Limited (ASX: PR1) ("**Pure**" or the "**Company**") reports the weight comparison for Carbon Nanotube Fibre ("**CNTF**"), following its announcement of 5 May 2026 confirming single CNTF thermal conductivity exceeding copper and aluminium, the two incumbent metals underpinning global thermal management systems. This release is about weight. With thermal transport exceeding that of copper, and already established for CNTF at up to approximately 600* W/m·K*, this represents:*

- *approximately half the density of aluminium and roughly one sixth (1/6th) the density of copper; and*
- *up to approximately 3 times lighter than aluminium and 5.5 times lighter than copper at system level.*

This establishes CNTF as a high conductivity, low mass thermal material at a time when weight and thermal constraints are emerging together as a primary bottleneck in AI compute infrastructure, defence systems and high-power electronics.

Importantly, this performance has been achieved in a flexible, textile processable form factor. Unlike rigid copper or aluminium, CNTF enables woven, knitted and braided 3D architectures, potentially opening entirely new thermal management geometries not achievable with conventional metals that will be assessed.

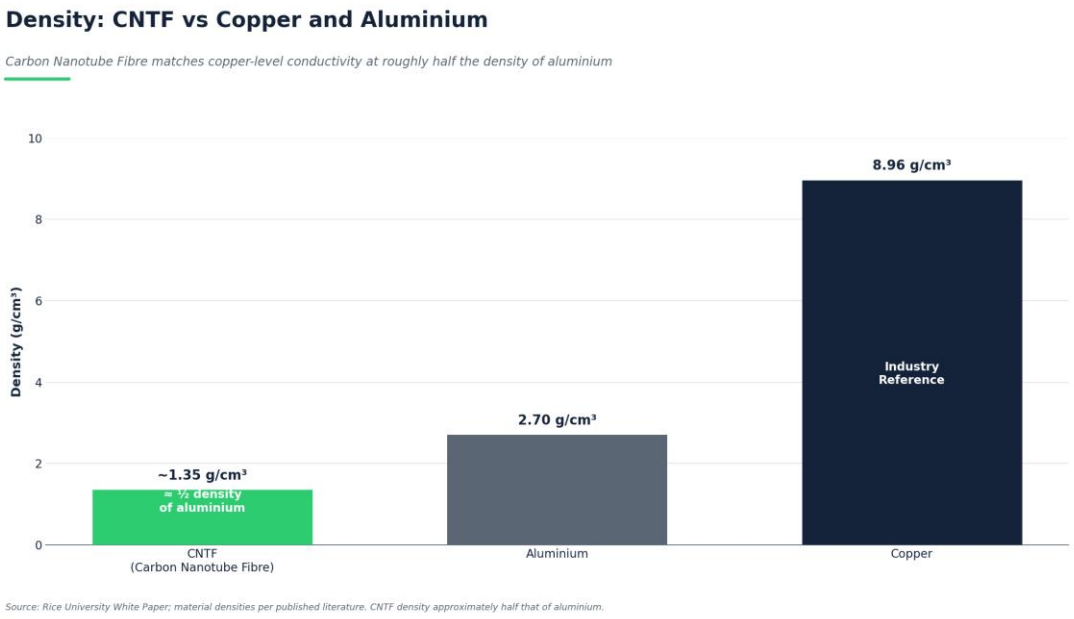

Figure 1: Density: Single CNTF vs Copper and Aluminium.

Commercial Context and Strategic Positioning

Pure considers the weight advantage highly significant in the context of accelerating demand for high density compute and power systems, where thermal management applications mass is increasingly constraining system design, payload and capital efficiency.

CNTF is being positioned directly into this constraint.

In parallel with technical validation, the Company has commenced early-stage engagement with:

- Robotics and Drone Manufacturers;
- Defence prime contractors; and
- Hyperscale data centre infrastructure operators;

Discussions are progressing across prototype evaluation, jointly funded development and integration testing.

At the same time, Pure is advancing a structured United States Government funding strategy, targeting programs aligned to advanced materials and thermal management under Department of Defence ("**DoD**") and Department of Energy ("**DoE**") frameworks. These dual pathways, commercial engagement and government funding, are being progressed in parallel to minimise the gap between prototype validation and pilot-scale deployment.

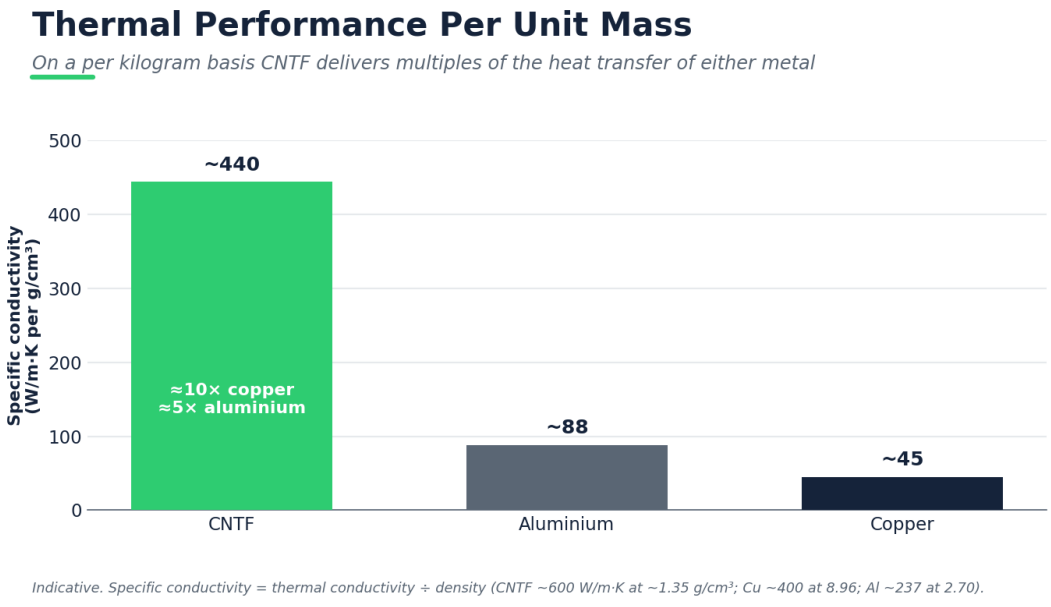

Figure 2: Thermal Performance Per Unit Mass.

COMMENTARY

> *"Our last release proved the conductivity. This one is about weight and density, and the comparison is decisive. CNTF is positioned to deliver equivalent thermal management potential at up to 5.5 times lighter than copper and 3 times lighter than aluminium, the two materials that have defined thermal management for decades.*
>
> *"Weight is not a secondary metric. In mobile, airborne and space constrained platforms, specific thermal management applications mass is often the binding constraint, and this is exactly where CNTF separates from the metals.*
>
> *"We are now seeing alignment between technical validation, commercial engagement and government funding pathways, which together form a structured pathway toward deployment.*
>
> *"Extremely important to note, our applications can be printed and manufactured specifically for hard to reach places a significant advantage over metals.*
>
> *"Importantly, If CNTF performs across the four planned property and performance releases as the conductivity and weight data is currently signalling, the addressable market extends well beyond AI thermal management into directed energy weapons, hypersonics thermal protection, electric vehicle battery thermal management, robotics, aerospace and grid scale power electronics. Each is a multibillion-dollar end market in its own right."*
>
> **— Rocco Tassone, Interim CEO** Pure Resources Limited

DETAIL

The Weight Case: CNTF vs Copper and Aluminium

Density, the mass per unit volume of a material, sets the floor on how heavy metal based thermal management infrastructure can be. Copper and aluminium have set the reference standard for industrial and electronics cooling for over five decades, but both carry a fixed mass penalty bounded by metal chemistry. Development of Novel CNTF Thermal Management Infrastructure Solution (Pasquali, Preston, Sanchez and Wehmeyer)[1] characterises CNTF as delivering copper level thermal conductivity at approximately half the density of aluminium, while introducing engineering properties that the metals intrinsically cannot provide:

- Weight: CNTF has a density of approximately 1.3 to 1.4 g/cm³, about half that of aluminium (2.70 g/cm³) and roughly one sixth that of copper (8.96 g/cm³), while matching copper level thermal conductivity.

- Performance per unit mass: combining copper level conductivity with a fraction of the density, CNTF delivers specific thermal conductivity of the order of ten times copper and five times aluminium, the metric that matters most where every gram of cooling hardware is constrained. This headroom can be progressively optimised through annealing, doping and spinning processes under active development at Rice University.
- Form factor: copper and aluminium achieve their performance in a rigid, geometrically constrained form, machined or extruded only. CNTF achieves comparable and superior performance while remaining flexible and textile processable, enabling 3D knitted, braided and conformable thermal architectures that reduce mass further and are physically impossible to replicate in machined copper or extruded aluminium.

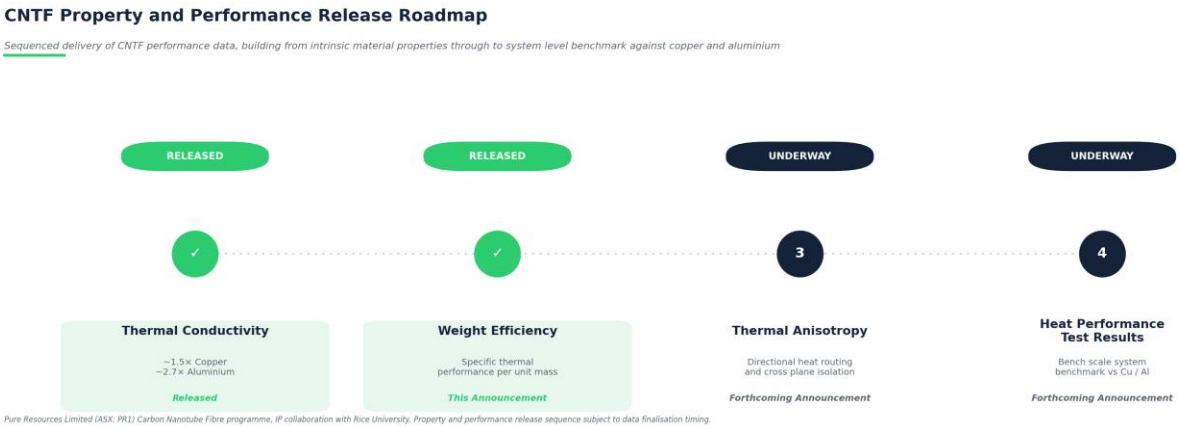

Figure 3: CNTF Property and Performance Release Roadmap.

Technical Context: CNTF is Set to be a Game Changer

CNTF provides a unique positioning advantage:

- Outperforms incumbent metals on both conductivity and weight;
- Avoids excessive reliance on critical mineral supply chains; and
- Enables new manufacturing pathways via textile processing to be inserted where metals simply cannot reach.

This combination aligns strongly with global policy priorities around supply chain resilience and advanced manufacturing capability.

The weight advantage compounds at system level. Because CNTF matches copper level conductivity at a fraction of the density, thermal management infrastructure delivering the same thermal duty can be built with substantially less material, which the Company targets at up to approximately 3 times lighter than aluminium and 5.5 times lighter than copper on a system basis.

For mobile, airborne and space constrained platforms, where every kilogram of thermal hardware displaces payload, range or compute, this is frequently the binding design constraint rather than bulk conductivity in isolation. Rice University is progressing post processing improvements through annealing, doping and spinning protocols expected to lift performance per unit mass further.

Two further engineering points are relevant for end users. First, on mass constrained platforms the relevant metric is cooling performance per unit weight, not bulk conductivity in isolation, and it is on this basis that CNTF delivers its largest margin over copper and aluminium. CNTF textile architectures also provide heat handling capability above conventional fin and vapour chamber baselines at lower mass.

Second, CNTF maintains thermal performance over a wider operating temperature envelope than copper or aluminium and may offer advantages in high-temperature or thermally cycled environments where metal softening, creep, oxidation, and mass penalties can constrain performance, which is directly relevant to defence, aerospace and high-power electronics applications where the operating envelope is mission critical.

AUTHORISATION

Approval & Release

This announcement is approved for release by the Board of Pure Resources Limited.

Rocco Tassone
Chief Executive Officer
Pure Resources Limited

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REFERENCES

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DISCLAIMER

Forward-Looking Statements

*This announcement contains forward-looking statements concerning Pure Resources Limited (ASX: PR1) (**"Pure"** or the **"Company"**) and its current expectations, intentions and projections regarding the Company's future operating and financial performance, business plans, projects, strategies, prospects and the markets in which it operates. Forward-looking statements can generally be identified by the use of words such as "anticipate", "believe", "expect", "intend", "may", "plan", "project", "potential", "estimate", "target", "forecast", "guidance", "should", "will" and similar expressions.*

ABOUT

Pure Resources Limited (ASX: PR1) is an ASX-listed advanced materials and critical minerals company pursuing an integrated mine-to-market strategy — from 100% ownership of an upstream graphite and garnet asset in Western Australia, through a US DoE Strategic Partnership for heavy rare earths, to a funded downstream R&D collaboration with Rice University (Houston) in high-performance carbon nanotube fibre.

THE MATERIAL OF THE INTELLIGENCE AGE

"CNTFs are not just an incremental improvement — they represent a step change in materials capability. Through advanced materials science, they unlock lighter, stronger and more conductive systems that redefine performance across defence, energy and advanced manufacturing. This is not evolution; it is a fundamental revolution in what materials can do."

01 UPSTREAM

Garnet Hills Project Graphite & Garnet

The Company's 100% owned **Garnet Hills Project** provides upstream exposure to graphite and garnet under a granted mining lease in Western Australia.

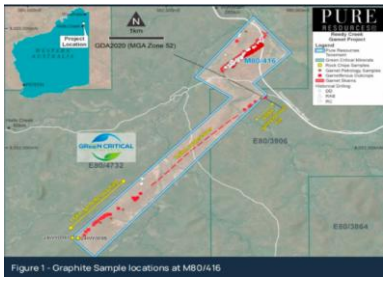

Fig. 1 Graphite sample locations at M80/416, Reedy Creek Garnet Project (GDA2020, MGA Zone 52).

● WESTERN AUSTRALIA · GRANTED MINING LEASE

02 STRATEGIC PARTNERSHIP

Oak Ridge National Laboratory HREEs & Yttrium

The deposit has attracted a **Strategic Partnership Projects Agreement with the US Department of Energy (DoE) Oak Ridge National Laboratory**, targeting the recovery of **Heavy Rare Earth Elements and Yttrium** for United States critical materials supply chains.

Fig. 2 US DoE Oak Ridge National Laboratory — HREE & Yttrium recovery programme.

● US DEPARTMENT OF ENERGY · ORNL PARTNERSHIP

03 IP COLLABORATION

Rice University Carbon Nanotube Fibre (CNTF)

Pure is executing a downstream strategy anchored by a funded R&D collaboration with **Rice University**, focused on **Carbon Nanotube Fibre thermal management technology** for AI data centre infrastructure and defence applications.

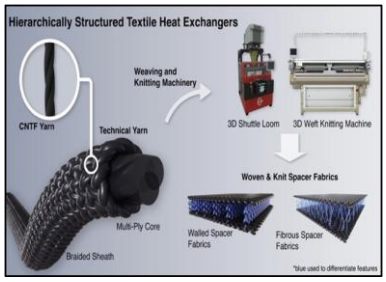

Fig. 3 Hierarchically structured textile heat exchangers — CNTF yarn to woven & knit spacer fabrics.

● RICE UNIVERSITY · FUNDED R&D COLLABORATION