



MGA Thermal: Full Steam Ahead

What if you could retrofit a coal-powered power station to run off stored renewable energy, using a new type of energy storage – one that is cheap, clean, safe and scalable?

A pioneering company home grown in the Hunter, MGA Thermal, has developed a revolutionary technology that can do just that – and it looks a lot like a large brick. Patented by the University of Newcastle after years of research and development, Miscibility Gaps Alloy (MGA) Blocks are the basis of the company's Thermal Energy Storage Systems, which have a range of applications including storing renewable energy, making 24/7 clean steam for industrial heat and running steam turbines at power stations instead of burning coal.

The co-founder and Chief Technology Officer of Tomago-based MGA Thermal, Alexander Post, is a graduate of mechanical engineering and physics from the University of Newcastle and holds a PhD in concentrated solar thermal power with the CSIRO.

"MGA Thermal means a lot to me, having seen this research come all the way from the lab into the real world," Dr Post says. "This really is a chance for us to make a material difference in the world's efforts to decarbonise."

How does it work? Put simply, "The blocks are heated up using electricity from excess renewables; we store that heat in the blocks very effectively, and then we dispatch that heat when industry needs it. Our product means the ability to store and dispatch renewable energy on demand to replace fossil fuels."

Listed as one of the country's top 100 innovators by the Australian Business Review in 2021, Dr Post is

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passionate about creating sustainable pathways to commercialise innovative tech research for real-world impact. And the five-year-old company's impact is already being felt: "We manufacture our bespoke material here in the Hunter and we are planning to export it all over the world," he says.

As the "beating heart of Australia's energy network", the Hunter region is the perfect location for the innovative business. "It's a highly skilled region," says Head of Engineering Annie Lacombe. "We're tapping into the talent that's already here, and offering opportunities for local people."

Boosted by a total \$3.75m in federal government funding via the Australian Renewable Energy Agency (ARENA), those opportunities are set to multiply. "We have a rapid growth plan to meet the demands set by decarbonisation," Dr Post says. "Our next stage is a 20-times increase in our manufacturing capacity here in Newcastle, which allows us to produce storage material at gigawatt-hour per annum scale for our customers."



Australian Government



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