

Sunlands Energy Co. Thermal Energy Storage Technology Grant of Australian Patent

The Company is pleased to announce that the Commissioner of Patents has granted an Australian patent to its joint venture partner, Sunlands Energy Co., for its thermal battery technology. This patent, and the recent grants in the USA and South Africa underpin the joint venture's access to one of the largest and fastest growing segments of the global energy markets.

Installations of energy storage systems globally including LDES increased by almost 300% in 2023 and forecast to grow by more than 20% annually in the next 5 years. The joint venture's participation in this global market has the potential to deliver the Company the single largest demand source for its coarse flake products.

Patents now granted in USA, South Africa and Australia

Sunlands Energy Co.'s TES Graphite Cell technology was the subject of an international patent application in November 2017. The application was made under the World Intellectual Property Organisation's Patent Cooperation Treaty which covers 155 countries.

The Australian patent has been granted for Sunlands Energy Co.'s THERMAL BATTERY AND ELECTRICITY GENERATION SYSTEM. The patent priority date is 29 November 2017.



Australian Government
IP Australia

CERTIFICATE OF GRANT STANDARD PATENT

Patent number: 2018377858

The Commissioner of Patents has granted the above patent on 12 December 2024, and certifies that the below particulars have been registered in the Register of Patents.

Name and address of patentee(s):

The Sunlands Company Pty Ltd of 349 Collins St Melbourne VIC 3000 Australia

Title of invention:

Thermal battery and electricity generation system

Name of inventor(s):

CATALANO, Sal and RUGGIERO, Bruno

Term of Patent:

Twenty years from 29 November 2018

Priority details:

Number
2017904817

Date
29 November 2017

Filed with
AU

The grant of the Australian patent follows the USA and South African patent grants for the same system. Sunlands Energy Co. is now waiting only on the European (including the United Kingdom) grants.



ABOUT QUANTUM GRAPHITE LIMITED

QGL is the owner of the Uley flake graphite mineral deposits located south-west of Port Lincoln, South Australia. The company's Uley 2 project represents the next stage of development of the century old Uley mine, one of the largest high-grade natural flake deposits in the world. For further information, quantumgraphite.com

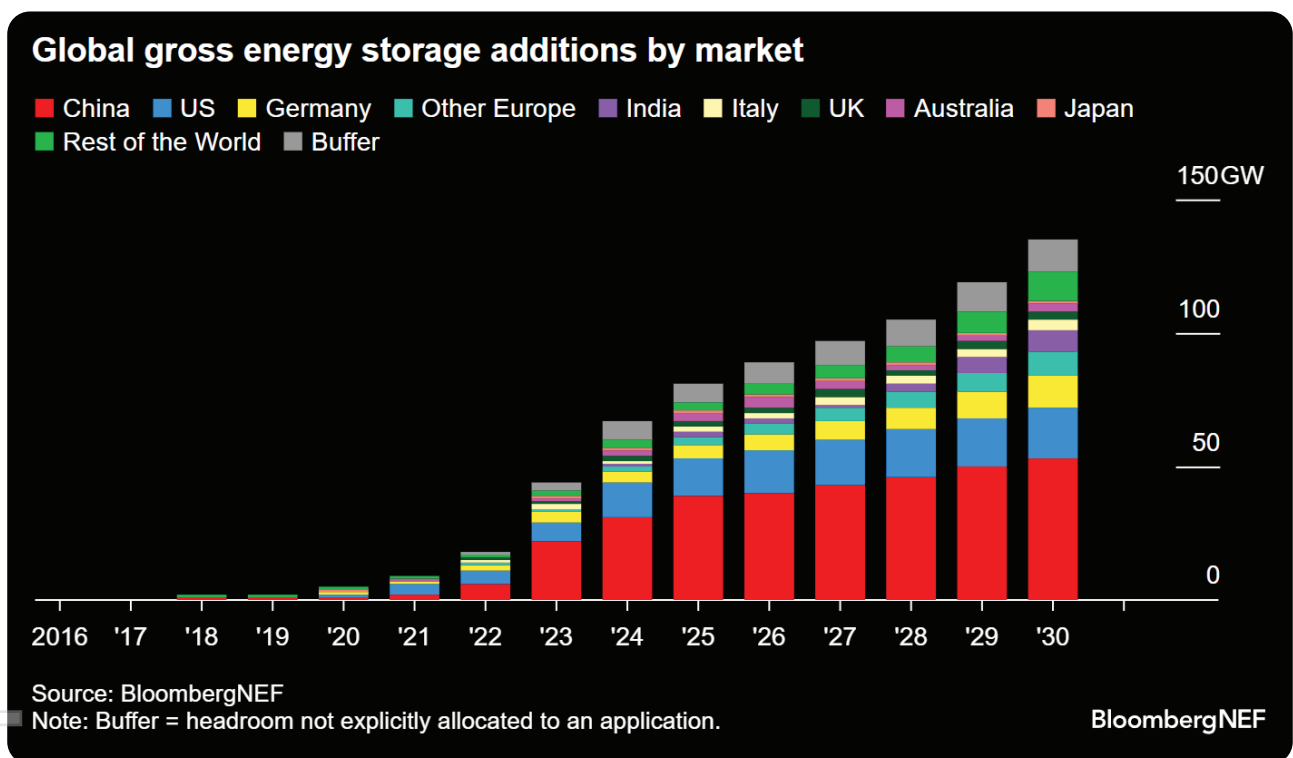
World Leading Long Duration Energy Storage Technology

Sunlands Power, the Company’s joint venture with Sunlands Energy Co., cements its participation in a world-leading LDES technology, critical to the decarbonisation of our energy sector. Sunlands Power is responsible for the manufacture of TES Graphite Cells that utilise Uley 2 coarse graphite as the essential raw material and critical component underpinning the world leading performance of TES Graphite Cells.

These cells represent the only available technology capable of creating supercritical steam at a scale to drive commercial, industrial and utility-scale turbine generators. The technology offers coal-fired generators a viable path to retrofitting their facilities and achieving emissions-free generation. As a grid network tool, the technology has a capability (e.g., grid forming, voltage and frequency control) unmatched compared with existing technologies such as synchronous condensers.

High Growth Profile of Long Duration Energy Storage Market

According to Bloomberg New Energy Finance, the global energy storage market experienced the largest year-on-year increase in installations in 2023, almost tripling in size with 45 GW (96 GWh) of new capacity.



The global energy storage market is projected to reach 137 GW (442 GWh) by 2030, with an annual growth rate of 21%. Much of this growth will be supported by government policy mandates and targeted subsidies, including the Inflation Reduction Act in the US and similar incentives and policies in Australia, Europe, Japan, South Korea and Latin America.

The Australian Energy Market Operator’s 2024 Integrated System Plan estimated that energy storage capacity in Australia would need to increase to 49 GW to meet its 2050 stated emissions reduction goal. CSIRO’s Renewable Energy Storage Roadmap 2023 similarly indicated that Australia’s energy storage needs to increase 10 to 14-fold to achieve a net zero future.

FOR MORE INFORMATION PLEASE CONTACT:

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ABOUT SUNLANDS ENERGY CO.

Sunlands Energy Co. is the leading developer of thermal energy storage technology designed to drive utility-scale steam turbine generators. The company designs thermal energy storage cells (TES) that are capable of restoring baseload generation, critical inertia to grid networks and eliminating the large scale curtailment of renewables generation. www.sunlandsco.com



ABOUT SUNLANDS POWER

Sunlands Power is our joint venture with Sunlands Energy Co. for the manufacture of coarse natural flake based thermal storage media and the manufacture of TES Graphite Cells. The flake for the storage media will be sourced exclusively from the QGL's Uley mine. The manufactured media will be fitted within TES Graphite Cells and the completed cells delivered to Sunlands Co. for deployment as a grid connected long duration energy storage solution. For further information, www.sunlandsco.com



ABOUT TES and LDES

Thermal energy storage (TES) is a type of energy storage that stores heat typically from the conversion of renewables electricity generation. TES is an ideal solution for long duration energy storage, a scalable energy storage system that stores energy predominantly from renewable sources for more than 12 hours and capable of delivering dispatchable, synchronous energy to grid networks as required especially when renewables generation is not available. LDES is the critical solution underpinning the decarbonisation of grid networks

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