



# Solar energy storage malta

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On the new, low carbon electric grid, a new class of flexible, cost-effective technologies capable of storing electricity over long durations is needed to ensure clean energy is always available, even when the sun isn't shining or the wind isn't blowing.

Malta's innovative thermo-electric energy storage system represents a flexible, low-cost, and expandable utility-scale solution for storing energy over long durations at high efficiency. The system is comprised of conventional components and abundant raw materials - steel, air, salt, and commodity liquids.

The technology capitalizes on existing manufacturing and construction ecosystems in the Power and Oil & Gas industries, compressing COD timelines, reducing risk and keeping costs low. Malta's utility scale and inertial component make it uniquely suited for power companies with a focus on resiliency ready to move to long duration today.

When charging (taking electricity from the grid) the system converts electricity to heat, in molten salt, and as cold in a chilled liquid. In these forms, this energy can be efficiently stored for long durations.

When discharging (injecting electricity into the grid) the system operates as a heat engine, combining the stored heat and cold together to generate electricity. Because a heat engine is driven by a change in temperature ( $T$ ) the extraction of cold as well as heat makes the Malta system more efficient than other technologies.

Molten salt is the most mature technology used in thermal storage. The nitrate salts used by Malta hold heat well and are stable, nonflammable, nonexplosive, and nontoxic, making them a sensible thermal energy storage medium.

Malta uses commodity antifreeze to store liquid at below-freezing temperatures. Antifreeze solutions are commonly used as heat transfer fluids, making them some of the best-understood liquids in the energy sector.

Pure water vapor - steam - is pressurized and used to spin a turbine, converting thermal energy from the system into electricity that can be dispatched to the grid.

Common metals and alloys, like steel and aluminum, make up the bulk of the piping, turbines, and other mechanical equipment used in a Malta energy storage system.

That's why technologies coming from companies like Malta, an energy storage technology developer that just raised \$50 million in new financing, are attracting attention and venture capital investment.



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Malta spun out from the special projects group at Google's parent company Alphabet and relies on some very old technologies combined in a novel way to provide long-duration energy storage that can be discharged during times of peaking demand – like the conditions that effected Texas's power grid last week.

The company's latest round of funding was led by the Swiss natural gas, methanol and agricultural conglomerate Proman, with participation from previous investors Breakthrough Energy Ventures, the nearly ubiquitous backer of renewable energy and sustainable startups, and Alfa Laval, which makes industrial filters and heat exchangers. Dustin Moskovitz, a co-founder of Facebook and the chief executive and co-founder of Asana, also participated in the round.

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