

# Alphabet malta energy storage





## Overview

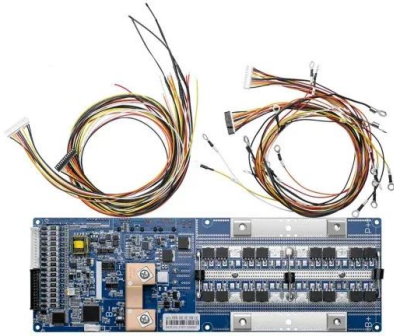
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Google's parent company Alphabet has a prototype system that they are looking to expand over the coming years to provide a sustainable and cost effective method of storing energy at grid level. Project Malta is an idea from Alphabet's X skunkworks division, which is also the same research lab that initially delved into autonomous vehicles.



## Alphabet malta energy storage

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### Alphabet's Project Malta to Use Salt for Large-Scale Energy Storage

In Alphabet's Malta's system, energy is stored as thermal energy - both heat and cold. The thermodynamics behind Malta's storage technology is shown here: In his work, Professor Laughlin mapped out the overall system and proved the math for how all the components should work together. X decided to start a small team to take the next step

### Home , Malta

Malta's Thermo-Electric Energy Storage is cost-effective, grid-scale technology. It collects and stores energy for long durations to feed the growing power demands of our electricity-hungry world and enable reliable integration of renewable resources. Energy can be stored from any power generation source in any location.



### Company , Malta

Malta was incubated at X, Alphabet's Moonshot Factory, which identified the Malta system as a product that had the potential to unlock a wealth of inexpensive clean energy to address global energy demands. This includes the global Long Duration Energy Storage Council of which Malta is a proud founding member and currently serves as Co

### Alphabet is in talks to spin out its molten-salt storage play

Alphabet's X research division appears to be in discussions to spin out Project Malta, a molten-



salt energy storage project, in a transaction involving Bill Gates's \$1 billion investment fund



### Malta Project explores salt and antifreeze energy storage

X turns to molten salt and antifreeze for energy storage. Molten salt and antifreeze fluid in vats could become the next generation of wind and solar energy storage, as the Google 'Malta' project is brought to life.. The technology is being developed by Google's parent company Alphabet and, if successful, could join the ranks of other energy storage market leaders such as Tesla.



### Google parent Alphabet experiments with grid energy storage

Salty solution. Malta was shown to Bloomberg, who describe it as looking like a miniature power plant with four cylindrical tanks connected via pipes to a heat pump can be scaled from the size of a large garage to a full sized power plant that could provide energy on demand to industrial facilities or data centers..



### [How to store renewable energy](#)

Because the Malta system uses fundamentally low-cost materials like salt, steel, and air, the cost of the physical system is low enough to make it a compelling solution for the most critical large-scale energy storage needs. The partnership. A vital part of Malta's new energy storage solution is heat transfer technology



supplied by Alfa Laval.



### Google's Parent Company Will Soon Compete With Tesla for Energy Storage

Malta, a project at Alphabet's "moonshot" factory, has developed a system that stores renewable energy in molten salt instead of batteries. Futurism 8.10.17, 1:19 PM EDT by Dom Galeon



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### Alphabet spins off moonshot project Malta with backing from ...

Malta, the renewable energy storage project born in Alphabet's moonshot factory X, is now on its own and flush with \$26 million from a Series A funding round led by Breakthrough Energy Ventures.

### Alphabet Spins Off Malta, a Long-Duration Electrothermal Storage

Malta has graduated from incubation to long-duration grid storage startup, with a \$26 million raise led by the billionaire-backed Breakthrough Energy Ventures. Concord New ...





### Alphabet could soon be competing with Tesla in renewable energy storage

Thermal salt-based storage has the potential to be several times cheaper than lithium-ion batteries and other existing grid-scale storage technologies, Raj Apte, Malta's head engineer, told Bloomberg.



### Long-duration 'pumped heat energy storage' startup Malta raises ...

While it can do up to 200 hours of storage, Malta said it is currently pursuing opportunities in long-duration energy storage of 10-12 hours, while the technology has the added advantage of being able to provide heat for industrial processes and district heating. the technology accelerator started up by Google (now Alphabet), and the



### Our Solution , Malta

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.

### Why Energy Storage Is the Future of the Grid (with Malta CEO ...

Former Alphabet X moonshot spinoff Malta Inc. uses established industrial processes and molten salt to store energy and pump it back into the grid as demand requires.





### [Energy storage start-up Malta raises USD 50m](#)

Cambridge, Massachusetts-based Malta is a start-up incubated at X, the Moonshot Factory of Google's parent company Alphabet Inc (NASDAQ:GOOGL). The firm has developed the Malta Pumped Heat Energy Storage (PHES) system that converts electricity from any source, to be stored as thermal energy.

### **Gates Among Billionaires Backing Alphabet Energy Spinoff**

Alphabet Inc.'s secretive X moonshot lab is spinning off an energy-storage project with backing from billionaires including Jeff Bezos and Bill Gates. Malta Inc., the newly independent company



### **Profiling Malta's molten salt energy storage method ...**

In a bid to improve the global energy storage market, Malta has designed a technique using molten salt which it claims could help grids around the world meet rising power demands. the research and development ...

### **With Malta, Alphabet's X is exploring a salt-based solution to store**

With a new "exploration" called Malta, Alphabet is now looking at cost-effective energy storage solutions. "Explorations" are X's "early-stage attempts to investigate new moonshots."





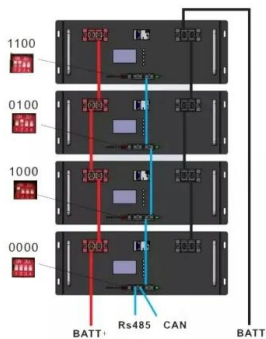
### Malta raises \$26M and forms new company committed to building the

BOSTON, Dec. 19, 2018 /PRNewswire/ -- Malta Inc, a pioneer in electro-thermal energy storage, today announced it has raised \$26M in a Series A round of funding led by Breakthrough Energy Ventures



### Why Energy Storage Is the Future of the Grid (with Malta CEO ...

Effective energy storage would make it possible to smooth out discrepancies in supply and demand, and harness renewable power more efficiently. Former Alphabet X moonshot spinoff Malta Inc



### Malta Grid - The Sustainable Way of Thermal Energy Storage

Alphabet's Malta's system, energy is stored as thermal energy, in the form of hot and cold. Nobel Prize-winning Stanford physics professor Robert Laughlin developed the system. Funding secured by Malta for developing grid-scale energy storage: This Malta is striving hard to check and test its commercial feasibility. They are trying to

### Malta: The Moonshot Project That Wants to Make a Salt Battery ...

Nitrite salt, used to store heat energy in the Malta concept of thermal energy storage. While the concept of storing thermal energy in molten salt has been around for decades, a new approach - from one of Google's sister companies - combines hot energy with cold to create a temperature difference that can be utilised to generate power.





### Google Spinoff Malta Nabs \$50M Series B for Thermal Long ...

Malta has raised a \$50 million Series B round to bring its super-long-duration energy storage to market, the company said Wednesday. The startup spun out of Google ...

### Alphabet's X lab is working on renewable energy storage

Add Alphabet's X (formerly Google X) to the list of those making an attempt: Its new Malta project is focused on building storage facilities that can support full-scale power grids.



### 'Project Malta': Alphabet's plans to store renewable energy using ...

But 'Malta' can count on some of the world's finest brains and Alphabet's \$95 billion-deep pockets as backing. Will it end up being the 24/7 renewable energy revolution the world has been waiting for?

### Alphabet Wants to Fix Renewable Energy's Storage Problem -- ...

A representation of Malta's grid-scale energy storage technology (Source: X) Gift this article. Share feedback Alphabet Inc.'s secretive X skunk works has another idea that could save the





### X graduates Malta as non-Alphabet company working on cheap

For the past several years, Alphabet's X has been working on Project Malta to create a new approach for grid-scale energy storage based on salt. Malta is now ready to graduate from the Moonshot



### Bill Gates, Jeff Bezos back Alphabet's energy storage spin-off

Source: X New Delhi: The world's two richest people, Amazon Chief Executive Officer Jeff Bezos and Microsoft founder Bill Gates, have invested \$26 million in a company that aims to store electricity by heating molten salt. Malta, the electro-thermal energy storage company, has been spun out of Alphabet's experimental technology firm, X. The ...



### Malta - Alphabet X's latest grid-scale energy storage technology

Malta - Alphabet X's latest grid-scale energy storage technology (bloomberg ) 134 points by Osiris30 on Aug 1, 2017 , hide , past , favorite , 83 comments: For a summary, this is an energy storage project, where the energy is stored in tanks of high and low temperature fluids. Temperature differentials can be generated by heat pumps



### Alphabet's X Launches 'Malta' Project to Store Renewable Energy

A rendering of what X's renewable energy storage plant would look like. parent company Alphabet that has worked on everything or wind turbines can't collect energy. Malta is part of X's



### ESS



Reference applications  
Reference applications

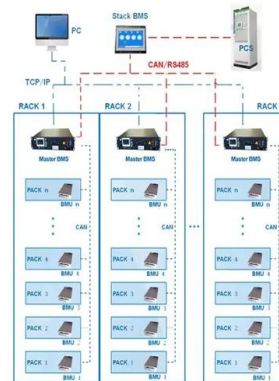
### Alphabet's next X moonshot: Malta, a project to store energy in ...

If successful, Malta could tap into the multibillion-dollar energy storage market, competing directly with the large-scale, lithium-ion battery farms currently being sold by companies like Tesla.

### X, the moonshot factory

Project Malta -- a new approach to grid-scale energy storage whose secret ingredient is molten salt -- graduates from X and becomes an independent company outside Alphabet as they get ready to build their first megawatt-scale pilot plant.

BMS Wiring Diagram



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