Solar360 Mobile Energy

Roll out solar array benefits

Overview

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Deep space missions can benefit by using the Roll Out Solar Array (ROSA) technology. Credits: Space Systems Loral (SSL) NASA’s Space Technology Mission Directorate (STMD) worked with two private firms to develop advanced structures for high power solar arrays that are stronger, lighter, and package.

The ROSA technology is a new/innovative mission-enabling solar array system that will offer maximum performance in key areas and affordability for NASA's future space missions. NASA selected DSS (Deployable Space Systems) of Santa Barbara, CA, in 2012 to develop advanced solar systems to support.

Roll-Out Solar Arrays (ROSA) are an alternative to existing solar array technologies. These arrays are a compact design, more affordable, and offer autonomous capabilities that can enhance a wide spectrum of scientific and commercial missions, from low-Earth orbit all the way to interplanetary. What is a roll-out solar array?

Roll-out solar arrays typically incorporate a flexible substrate combined with deployable thin-walled tubes. The deployable tubes are flattened in cross-section and coiled together with the flexible array during stowage, significantly improving packing efficiency.

How can deep space missions benefit from a solar array?

Deep space missions can benefit by using the Roll Out Solar Array (ROSA) technology. Credits: Space Systems Loral (SSL) NASA’s Space Technology Mission Directorate (STMD) worked with two private firms to develop

advanced structures for high power solar arrays that are stronger, lighter, and package more compactly for launch.

What is roll-out solar array (ROSA)?

Deployable Space Systems, Inc., (DSS) Roll-Out Solar Array (ROSA) is a new flexible-blanket technology that achieves ultra-high performance and affordability for end-users. Recently, in June 2017, a spaceflight demonstration mission of the ROSA solar array funded by the U.S. Air Force was conducted on the International Space Station (ISS).

How does a solar array work?

In general, the solar array rolls up around a spindle to form a compact cylinder for launch. Those solar wings are then deployed via strain energy in rolled booms that form the outer sides of the structure. A lightweight mesh material supports strings of photovoltaic cells that churn out electrical power. What’s more is that ROSA is scalable.

What is a Rosa solar array?

• ROSA is an innovative new solar array design that uses high strain one-piece composite slit-tube booms. The stored strain energy of the booms enforces the deployment actuation, and the booms provide the array's deployed structural stiffness and strength.

What is a solar array?

Solar arrays are an effective and efficient way to power spacecraft. They are the only reliable source of power for most satellites we have in orbit as well as space probes and rovers we sent to other planets, including Mars and Jupiter. The Roll-Out Solar Array (ROSA) Attached to a Robotic Arm of the ISS. Image Credit: NASA

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[Redwire's Roll-Out Solar Arrays to Enable Lunar ...]

JACKSONVILLE, Fla. (March 1, 2023) -Redwire Corporation (NYSE:RDW), a leader in space infrastructure for the next generation space

economy, announced today that its Roll-Out Solar Array (ROSA) technology is being used by ...

[Redwire Successfully Deploys the Most Powerful Roll ...]

JACKSONVILLE, Fla. (July 2, 2025) - Redwire Corporation (NYSE: RDW), a global leader in aerospace and defense technology solutions, today announced that it has successfully completed the first deployment test for one of its Roll ...

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The key technologies are sorted out to provide a reference for the selection of 6G satellite solar arrays and the development of roll-out solar arrays in the future. Key words : solar array;6G ...

Redwire Successfully Deploys the Most Powerful Roll-Out Solar Arrays

Redwire Successfully Deploys the Most Powerful Roll-Out Solar Arrays Ever Built, Prepares for Major Delivery in Fourth Quarter Provided by Business Wire Jul 2, 2025, 11:00:00 ...

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