

Rocket Hybrid Propulsion Market to Grow \$2 Billion by 2031, Accelerated by Innovations in Space Exploration Technologies

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/EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "[Rocket Hybrid Propulsion Market](#)," The rocket hybrid propulsion market was valued at \$1 billion in 2021, and is estimated to reach \$2 billion by 2031, growing at a CAGR of 6.7% from 2022 to 2031.

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Rocket hybrid propulsions used in satellite launch vehicles use a combination of two types of fuel for the combustion to take place in the satellite launch vehicle. This includes a combination of diesel, batteries, and other renewable energy. The use of hybrid propulsion systems is not new, and they have been adopted worldwide. Hybrid rockets avoid some of the restraints of solid rockets like the issue of handling the propellant used for rocket propulsion, while also avoiding some disadvantages of liquid rockets like their mechanical complexity. Moreover, it is difficult for the fuel & oxidizer to be mixed intimately, hybrid rockets tend to fail more frequently than liquids or solids. Like liquid rocket engines, hybrid rocket motors can be shut down easily and the thrust is throttleable.

In addition, the rocket hybrid propulsion used in satellite launch vehicles has witnessed significant growth in recent years, owing to increase in satellite launches across regions. Moreover, the satellite launch vehicle manufacturers operating across the globe has been inclined towards offering hybrid propulsion in rockets which eventually increases the rocket safety and increases their implementation in satellite launches. This proves to be a factor supplementing the growth of the market across the globe.

For instance, in May, 2022, HyPrSpace developed OB-1 reusable launcher, to offer a fast,

economical, sovereign, and more environment-friendly orbiting service HyPrSpace. For this project, HyPrSpace raised \$1.18 million in seed funding to develop a reusable hybrid micro-launch vehicle. HyPrSpace aims to develop a launcher using a propulsion technology that facilitates access to space hybrid propulsion. Similarly, in February, 2021, China Aerospace Science and Technology Corp announced its plans to conduct the maiden flight of the Long March 6A carrier rocket. Long March 6A will consist of a 50-meter, liquid-propelled core booster, and four solid-fuel side boosters. [Such developments create a wider scope for the growth of the market](#) across the globe.

Technological advances in propulsion included the perfection of methods for casting solid-propellant charges, development of more energetic solid propellants, introduction of new structural and insulation materials in both liquid and solid systems, manufacturing methods for larger motors and engines, and improvements in peripheral hardware such as pumps, valves, engine-cooling systems, and direction controls. Hybrid rocket engines are much more efficient than the other conventional engines. Hybrid rockets are chemically and mechanically simpler and are tolerant of processing and fabrication errors. Unlike other propulsion systems, hybrids can be easily throttled/restarted as per requirement. This ensures the safety regarding the thrust termination and abort possibility. The performance of the hybrid rockets can be improved further by changing the fuel grain mixture ratio by adding additives to the fuel grain such as metals and metal hydrides, or by improving the design of the rocket nozzle. The shape of the nozzle determines the nozzle efficiency.

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Moreover, companies that pay millions of dollars to put a satellite into orbit can now do the same for a fraction of that price. Smaller satellites and lower launch costs mean startups and students can sometimes launch projects for just a few thousand dollars. For instance, SpaceX CEO Elon Musk announced that the company's massive Starship rocket will be ludicrously cheap to get into orbit. The operational costs are expected to be \$2 million.

Based on type, the rocket engine segment held the highest share in 2021, accounting for more than half of the global hybrid propulsion market, and is expected to continue its leadership status during the forecast period. However, the rocket motor segment is expected to register the highest CAGR of 7.2% from 2022 to 2031.

Based on orbit, the Low Earth Orbit (LEO) segment accounted for the highest share in 2021, contributing to nearly half of the global hybrid propulsion market, and is expected to maintain its lead in terms of revenue during the forecast period. However, the Geostationary Earth Orbit (GEO) segment is expected to manifest the highest CAGR of 7.9% from 2022 to 2031.

Based on vehicle type, the unmanned segment accounted for the highest share in 2021, holding nearly three-fifths of the global hybrid propulsion market, and is expected to continue its

leadership status during the forecast period. However, the manned segment is estimated to grow at the highest CAGR of 7.9% during the forecast period.

Based on region, North America held the largest share in 2021, [contributing to nearly half of the global hybrid propulsion market share](#), and is projected to maintain its dominant share in terms of revenue in 2031. In addition, the Asia-Pacific region is expected to manifest the fastest CAGR of 7.9% during the forecast period.

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