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# MARSHALL STAR

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## NASA Announces Design for New Deep Space Exploration System

*NASA news release*

NASA has selected the design of a new Space Launch System that will take the agency's astronauts farther into space than ever before, create high-quality jobs here at home, and provide the cornerstone for America's future human space exploration efforts.

***Image right: Artist concept of SLS on launchpad. (NASA)***

This new heavy-lift rocket-in combination with a crew capsule already under development, increased support for the commercialization of astronaut travel to low Earth orbit, an extension of activities on the International Space Station until at least 2020, and a fresh focus on new technologies-is key to implementing the plan

laid out by President Obama and Congress in the bipartisan 2010 NASA Authorization Act, which the president signed last year. The booster will be America's most powerful since the Saturn V rocket that carried Apollo astronauts to the moon and will launch humans to places no one has gone before.



"This launch system will create good-paying American jobs, ensure continued U.S. leadership in space, and inspire millions around the world," NASA Administrator Charles Bolden said. "President Obama challenged us to be bold and dream big, and that's exactly what we are doing at NASA. While I was proud to fly on the space shuttle, tomorrow's explorers will now dream of one day walking on Mars."

This launch vehicle decision is the culmination of a months-long, comprehensive review of potential designs to ensure the nation gets a rocket that is not only powerful but also evolvable so it can be adapted to different missions as opportunities arise and new technologies are developed.

"Having settled on a new and powerful heavy-lift launch architecture, NASA can now move ahead with building that rocket and the next-generation vehicles and technologies needed for an ambitious program of crewed missions in deep space," said John P. Holdren, assistant to the President for Science and Technology. "I'm excited about NASA's new path forward and about its promise for continuing American leadership in human space exploration."

The SLS will carry human crews beyond low Earth orbit in a capsule named the Orion Multi-Purpose Crew Vehicle. The rocket will use a liquid hydrogen and liquid oxygen fuel system, where RS-25D/E engines will provide the core propulsion and the J2X engine is planned for use in the upper stage. There will be a competition to develop the boosters based on performance requirements.

The decision to go with the same fuel system for the core and the upper stage was based on a NASA analysis demonstrating that use of common components can reduce costs and increase flexibility. The heavy-lift rocket's early flights will be capable of lifting 70-100 metric tons before evolving to a lift capacity of 130 metric tons.

The early developmental flights may take advantage of existing solid boosters and other existing hardware. These flights will enable NASA to reduce developmental risk, drive innovation within the agency and private industry, and accomplish early exploration objectives.

"NASA has been making steady progress toward realizing the president's goal of deep space exploration, while doing so in a more affordable way," NASA Deputy Administrator Lori Garver said. "We have been driving down the costs on the Space Launch System and Orion contracts by adopting new ways of doing business and project hundreds of millions of dollars of savings each year."

NASA elected to initiate a competition for the booster stage based on performance parameters rather than on the type of propellant because of the need for flexibility. The specific acquisition strategy for procuring the core stage, booster stage, and upper stage is being developed and will be announced at a later time.

To learn more about the development of the SLS, visit:

<http://go.nasa.gov/newlaunchsystem>

<http://www.nasa.gov/exploration/home/index.html>

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## **Marshall Center Director Robert Lightfoot's Statement on the Space Launch System**

The NASA Administrator announced today that the agency is ready to begin