Boeing-Led Team to Study Nuclear-Powered Space Systems

NASA's Jet Propulsion Laboratory (JPL) has awarded a contract to a Boeing-led [NYSE: BA] team to study deep space propulsion systems for the Jupiter Icy Moons Orbiter (JIMO) mission, scheduled to launch no earlier than 2011.

JIMO would be the first space science mission in NASA's Project Prometheus, a part of the space agency's initiative to develop space nuclear power and electric propulsion technologies to revolutionize space exploration.

The contract, valued at $6 million with a $5 million option for further research, is one of three awarded and runs through fall 2003. The Boeing-led team will study technology options for the reactor, power conversion, electric propulsion and other subsystems of the JIMO spacecraft meant to explore the Jovian moons Ganymede, Callisto and Europa. NASA plans to select an industry prime contractor in fall 2004 to work with JPL to develop, launch and operate the spacecraft.

JIMO would show nuclear reactors can be operated safely and reliably in space to provide electrical power needed for propulsion and scientific exploration. The JIMO reactor would provide more than 100 times more usable onboard power than has been available to previous science probes. This opens new possibilities for exploration, including more flexible flight schedules less dependent on planetary positions and longer loiter times around multiple destinations on the same mission.

Nuclear-powered spacecraft would allow for the collection and return of an enormous amount of imagery and scientific data and could support scientific instruments such as ice-penetrating radar, electromagnetically launched deep penetrators and laser spectroscopes.

"JIMO will be an ambitious project and Boeing is ready to develop new ways to travel and explore the solar system," said Joe Mills, Boeing vice president and program manager for JIMO. "I'm excited about the exploration of Jupiter's icy moons and unlocking their secrets."

Boeing Phantom Works, the company's advanced R&D unit, took a best-of-industry approach to build its JIMO team, which includes the company's NASA Systems, Boeing Satellite Systems, Boeing Electronic Dynamic Devices Inc. and Rocketdyne Propulsion and Power. Among the companies teamed with Boeing are BWX Technologies Inc., and Ball Aerospace & Technologies Corp.

BWX Technologies Inc., a division of McDermott Inc., will evaluate reactor options for the JIMO spacecraft. For the past five decades, BWXT has supplied nuclear components to the Navy with an unprecedented operational and safety record. Ball Aerospace & Technologies Corp. brings its deep space experience from the Discovery and Mars Exploration Programs to the team. In addition, Ball has a long heritage of providing scientific instruments to NASA.

Boeing brings large-scale systems and payload integration experience from a wide range of military and commercial aircraft, spacecraft and satellite programs, including some of NASA's most complex systems, such as the International Space Station. Boeing also offers experience in space electric propulsion from NASA's Deep Space 1 probe and the 702 series satellites.

In another part of the NASA Prometheus program, Boeing is also currently working on a next generation radioisotope power source under a recently-awarded U.S. Department of Energy contract. This generator is designed for use both in space and on the surface of planetary bodies such as Mars.

Scientists believe Jupiter's icy moons have briny oceans beneath their crusts. These oceans are high-priority destinations for NASA's strategic mission to understand life in the universe because they could have the key ingredients for supporting microbial life. These ingredients are liquid water, chemical nutrients and sources of energy. JIMO's mission -- orbiting and intensively studying multiple moons -- could not be accomplished with conventional propulsion.

The Boeing Company, with headquarters in Chicago, is the leading aerospace company in the world and the United States' leading exporter. The company has an extensive global reach, including customers in 145 countries, employees in more than 70 countries and operations in 38 U.S. states as well as Canada and Australia.

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