Boeing Awarded NASA Human and Robotic Technology Development Projects

NASA recently selected Boeing [NYSE: BA] to work on seven technology development projects worth almost $25 million (in the first year) as part of NASA's Human and Robotic Technology (H&RT) program.

The H&RT is strategically linked to Project Constellation Spirals one and two, which are efforts to return humans to the moon by 2020. The development projects will support the research and technology goals and objectives of the Vision for Space Exploration.

"These development projects will allow NASA to develop the critical technologies needed to return to the moon and one day to Mars," said Jack Chenevey, Boeing lead for H&RT activities. " This opportunity to be part of the very first round of technology developments means Boeing will be well positioned to continue our participation in the Nation's crewed space activities and that we will be able to continue to bring value to NASA as they move toward the next frontiers of space exploration."

Boeing was awarded contracts in the following areas:

- **Fully Integrated Scalable, Modular Two Fluid Propulsion and Power Module for Sustainable Architecture:** Valued at more than $2 million, this project will be managed by Boeing Rocketdyne Propulsion & Power in Canoga Park , Calif. , focusing on the development of a combined propulsion and power unit with a variety of uses. It will require only two liquid propellants, compared to as many as five in current designs.
- **High Voltage/High Temperature Electronics for Space Exploration** (Rocketdyne): This project will be aimed at developing wide band gap semiconductor electronic power devices. Complex, heavy cooling systems will be eliminated. Potential value for Phase 1 could be more than $2 million.
- **Critical Thrust Chamber Demonstrations for a Revolutionary Ultra-High Thrust Range Cryogenic Space Engine** (Rocketdyne): With a potential development value of nearly $6 million , this unique thrust chamber design could be used any engine size.
- **Multimegawatt-Class Magneto Plasma Dynamic Electric Propulsion System Demonstration** (Rocketdyne): The goal is a lithium-fueled 500-kWe electric propulsion system capable of running for up to 1,000 hours. Part of the demonstration will include a test at the full power required for Mars/Lunar missions. Phase 1 research could be nearly $6 million.
- **Precision Landing and Hazard Avoidance Technology Demonstration:** As part of this four-year demonstration with a first year value of $3.1 million, engineers at Huntington Beach, Calif. will integrate Light Detection and Ranging (Lidar) terrain mapping and safe site selection software and hardware with flight proven guidance and control to provide autonomous navigation and hazard avoidance during landing. Boeing will also d evelop hardware and software, and will build a prototype lander for testing, culminating in a drop test over hazardous terrain.
- **High Orbit Spacecraft Testbed (HOST) Technology Demonstrator:** A 3.5-year project to design and build a spacecraft accommodating selected flight experiments HOST will be designed to operate for up to 2 years in a severe radiation environment. Boeing Phantom Works, in Seattle , Washington , will manage this program. The value for phase 1 is $3.8 million. The NASA Living With a Star (LWS) Space Experiment Testbed project at NASA Goddard Space Flight Center will also provide an invited payload.
- **Ultra-High Specific Power Density Solar Blanket** (Boeing Satellite Systems): Boeing Spectrolab, based in Sylmar, Calif. will receive $1.96 million for the first year to develop new space photovoltaic panel technologies, with extremely high specific power and compact stowage volume, enabling missions with high electric power demands on the surface of the moon and Mars, as well as on spacecraft.

In addition to these awards, Boeing will also serve as a subcontractor to the Georgia Institute of Technology for a project called Silicon-Germanium Integrated Electronics for Extreme Environments. This project will develop electronic modules able to survive the Lunar night without heaters. By eliminating heaters, low-temperature electronics can reduce the need for batteries, save weight, and lower the mission costs.

Of the 70 proposals selected by NASA as part of its H&RT Broad Agency Announcement issued in July 2005, Boeing received the most of any single contractor. NASA is expected to finalize the contracts in Fiscal 2005.

Phantom Works is the advanced research and development unit and catalyst of innovation for Boeing. Through its Integrated Defense Advanced Systems group, it provides leading edge systems and technology solutions to Boeing Integrated Defense Systems.

A unit of The Boeing Company, Boeing Integrated Defense Systems is one of the world's largest space and defense businesses. Headquartered in St. Louis, Boeing Integrated Defense Systems is a $27 billion business. It provides network-centric system solutions to its global military, government, and commercial customers. It is a leading provider of intelligence, surveillance and reconnaissance systems; the world's largest military aircraft manufacturer; the world's largest satellite manufacturer and a leading provider of space-based communications; the primary systems integrator for U.S. missile defense and Department of Homeland Security; NASA's largest contractor; and a global leader in launch services.

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