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PRESS RELEASE 081015, August 10, 2015
Ad Astra Rocket Company and NASA move to execution phase of NextSTEP VASIMR® partnership

[Webster, Texas – for immediate release] – Ad Astra Rocket Company and NASA have successfully completed contract negotiations on the company's Next Space Technology Exploration Partnerships (NextSTEP) award, announced on March 31, 2015, and now enter the execution phase of the project.

The parties executed the contract, a three-year, fixed price agreement, on August 7, 2015 for a total value of just over \$9 million. The agreement is structured as a one-year contract with two additional one-year extensions based on the accomplishment of mutually agreed upon progress milestones.

NASA's Advanced Exploration Systems Program sponsors NextSTEP awards in a 50/50 cost partnership with industry. Under this award, Ad Astra will conduct a long duration, high power test of an upgraded version of the VX-200™ VASIMR® prototype, the VX-200SS™ (for steady state), for a minimum of 100 hours continuously at a power level of 100 kW. These experiments aim to demonstrate the engine's new proprietary core design and thermal control subsystem and to better estimate component lifetime. The tests will be conducted in Ad Astra's large, state-of-the-art vacuum chamber in the company's Texas facility.

Since its inception in 2005, Ad Astra has continued to advance the technology readiness level (TRL) of the VASIMR® engine almost exclusively with private funding. This funding enabled the company to complete more than 10,000 successful high power firings, demonstrating the engine's excellent reliability and performance (6 N thrust, 5000 sec I_{sp} at greater than 70% efficiency) with no measurable signs of engine wear.

To optimize company resources, these tests were of short duration (less than 1 minute), but sufficiently long to reliably establish the rocket's performance and measure thermal loads. Now, a longer duration test is needed to validate the new rocket core design for extended operation in



space. Going forward in partnership with NASA under the NextSTEP award, Ad Astra continues the technology maturation of the VASIMR® to a TRL level greater than 5, a step closer to flight.

"We are proud of our accomplishments and thrilled by this announcement, which gives us a big boost toward space," said Dr. Mark D. Carter, Ad Astra's Sr. VP, Technology Development. "I am proud to be a part of this project, an example of a progressive commercial-NASA partnership, seeking to advance the United States' electric propulsion capability for the future of spaceflight," said Dr. Jared P. Squire, Ad Astra's Sr. VP, Research. Drs. Carter and Squire are leading the project at Ad Astra as Principal and Co-Principal Investigators respectively.

ABOUT THE TECHNOLOGY

Short for Variable Specific Impulse Magnetoplasma Rocket, VASIMR® works with plasma, an electrically charged gas that can be heated to extreme temperatures by radio waves and controlled and guided by strong magnetic fields. The magnetic field also insulates nearby structures so exhaust temperatures well beyond the melting point of materials can be achieved. In rocket propulsion, the higher the temperature of the exhaust gases, the higher their velocity and the higher the fuel efficiency. Plasma rockets feature exhaust velocities far above those achievable by their chemical cousins, so their fuel consumption is extremely low.

ABOUT AD ASTRA

A US Delaware corporation established in 2005, Ad Astra Rocket Company is the developer of the VASIMR® engine, an advanced plasma space propulsion system aimed at the emerging in-space transportation market. Ad Astra also owns and operates supporting research and development subsidiaries in the US and Costa Rica. Through its subsidiaries, the company also develops earthbound high technology applications in renewable energy, advanced manufacturing and applied physics. Ad Astra has its main laboratory and corporate headquarters at 141 W. Bay Area Boulevard in Webster, Texas, USA, about two miles from the NASA Johnson Space Center.