



**DEFENSE ADVANCED RESEARCH PROJECTS AGENCY  
675 NORTH RANDOLPH STREET  
ARLINGTON, VA 22203-2114**

**FEB 3 - 2017**

The Honorable Derek Kilmer  
U. S. House of Representatives  
Washington, DC 20515

Dear Congressman Kilmer:

Thank you for your letter of January 31, 2017, regarding the Defense Advanced Research Projects Agency's (DARPA) Robotic Servicing of Geosynchronous Satellites (RSGS) program. And thank you for your appreciation of DARPA's work and the support you have shown the Agency over the years.

The RSGS program aims to transform national security operations in geosynchronous Earth orbit (GEO). Today, virtually every aspect of military operations is critically dependent on exquisitely capable billion-dollar satellites that orbit 36,000 kilometers from the surface of the Earth. When failures occur at GEO, we have no way to determine with certainty what happened and—worse—we are unable to do anything to repair them. The RSGS program is aimed at demonstrating four on-orbit functions that are critically needed for national security:

- Detailed inspection of satellites, including obstructed areas;
- Assistance in repairs of failed deployment mechanisms such as apertures and solar arrays;
- Installation of new payloads such as weather sensors and “neighborhood watch” sensors on high-value assets;
- Re-location of space assets following divert maneuvers to avoid dangers.

To accomplish these missions, RSGS will demonstrate on-orbit highly advanced space robotics capabilities that DARPA previously developed. Please note that no existing or planned commercial servicing systems address this full set of capabilities. In fact, current commercial solutions in development will address only the re-location function and not the other three capabilities.

While RSGS and NASA's Restore-L mission will both demonstrate on-orbit servicing of “unprepared” satellites (i.e., satellites that were never designed to be serviced), the two have several important differences. Due to the greater communications delay at GEO, RSGS will perform many of its missions autonomously, while Restore-L, operating in low Earth orbit, will rely heavily on ground control for critical servicing tasks. Also, Restore-L is aimed principally at satellite life extension; RSGS will enable life extension while also upgrading or replacing faulty hardware and repairing stuck assemblies.

DARPA carefully considered the best acquisition approach to ensure the RSGS capability would be made available to high-value Government assets and concluded that a commercial partnership was the best approach. The Air Force has stated that it does not have interest in operating a servicer for both cost and national policy reasons, but is willing to purchase services from such a provider in the future. Since there are roughly four times as many commercial satellites in GEO as Government satellites, DARPA elected to solicit a commercial partner capable of servicing both in order to lower the cost of servicing to all parties. This partnership approach will enable the fastest deployment of RSGS capability.

In the 2 years prior to issuing the RSGS solicitation, DARPA conducted market analysis of various nascent satellite servicing initiatives, none of which exist today, and concluded that no company proposed to develop a dexterous robotic capability that would enable the close inspection, repair, and installation functions that DARPA intends to demonstrate with RSGS. During this time, DARPA also had extensive communications with major U.S. aerospace companies, including Orbital ATK, to determine how best to partner with industry, what alternatives might be available, and what program structure would best support a partner's business interests while simultaneously supporting DARPA's national security priorities.

DARPA has stated in its solicitation and elsewhere that the Government-developed robotic servicing technologies will not become the exclusive property of its commercial partner, but rather will be shared with other qualified and interested U.S. aerospace companies. We believe the appropriate method of sharing the technology would be through cooperative research and development agreements (CRADAs), a standard way of sharing Government-developed technologies with commercial industry. Shortly after completing our partner selection process, we will notify other U.S. aerospace companies of the CRADA opportunity. Most of the technologies are still in the developmental stage.

Again, thank you for your trust in and support of DARPA and what we do.

The DARPA point of contact is Lisa Heyes, DARPA Congressional Affairs; she is available at [Lisa.Heyes@darpa.mil](mailto:Lisa.Heyes@darpa.mil) and 703-526-2810.

Identical letters have been sent to Congressmen Andy Biggs, Donald Beyer, Scott Peters, and Pete Aguilar.

Sincerely,



Steven H. Walker, Ph.D.  
Acting Director