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BY THE ARMED SERVICES COMMITTEE,
SUBCOMMITTEE ON EMERGING THREATS AND CAPABILITIES
UNITED STATES HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON EMERGING THREATS AND CAPABILITIES
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2016 Air Force Science and Technology

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Chairman Wilson, Ranking Member Langevin, Members of the Subcommittee and Staff, I am pleased to have the opportunity to provide testimony on the Fiscal Year 2016 Air Force Science and Technology Program.

This has been an exceptional year for Air Force science and technology. In the summer of 2014, the Secretary and Chief of Staff of the Air Force published *America's Air Force: A Call to the Future*, our 30 year strategy for the future of the Air Force. Science and technology was highlighted as foundational to achieving the strategy's goals.

The fiscal year 2016 President's Budget request for Air Force science and technology is \$2.4 billion, a 14% increase from the previous fiscal year request. Air Force leadership recognizes the excellent work the S&T Program is accomplishing and clearly wants to see more. This request supports our continued pursuit of technology that is responsive, revolutionary, and relevant. We will continue to be responsive to urgent warfighter needs, revolutionary at inventing new concepts, and relevant to near- and mid-term military requirements.

Being responsive to a time-critical need, the Air Force S&T Program directly supported the warfighter through its' rapid innovation process. In support of the Combined Joint Special Operations Task Force in Afghanistan, the Air Force developed and deployed a sensor payload on a tactical remotely piloted vehicle that is credited with IED detection, weapons cache identification, and enemy captured or killed.

On the revolutionary front, adaptive engine technology work boasts a new engine architecture expected to reduce specific fuel consumption by 25 percent. This will improve how the next generation aircraft get to the fight, stay for the fight and survive the fight by producing greater range, higher speeds, and increased loiter. Ground testing of the Adaptive Versatile Engine Technology (ADVENT) project, which began in 2007, was completed last year and

demonstrated greater than 20 percent reduction in specific fuel consumption. Based on the huge successes of ADVENT, the FY16 President's Budget request includes support of a demonstration and validation program for adaptive engine technologies, the Adaptive Engine Transition Program. Nanotechnology is another revolutionary, game-changing, technology. An example of our work in nanotechnology is our development of nontraditional, flexible and wearable sensors that detect biomarkers signifying fatigue, cognition, and other human performance indicators. Applications of this technology are endless, but include medevac and trauma care, flight operations and special operations. The skin-like sensors are being developed using nanoparticle inks and printed with additive manufacturing technology to integrate microfluidics, power, and communications onto a small wearable sensor.

We are also addressing relevant warfighter near- and mid-term requirements, and I would like to highlight three of these technologies. The High Velocity Penetrating Weapon (HVPW) project was completed last year and enables smaller, boosted penetrators for defeating hard and deeply buried targets, an essential capability in our current threat environment. Additionally, in July, the Automated Navigation and Guidance Experiment for Local Space, or ANGELS program, was launched into geosynchronous earth orbit to conduct on-orbit proximity experiments. The technology being demonstrated will test our ability to detect, track and characterize space objects at geostationary orbit, allowing the Air Force to more expediently and efficiently evaluate events affecting military space assets. Lastly, I would like to highlight novel training and education approaches we are developing in a live, virtual, and constructive advanced training environment. This environment will prepare the warfighter for success in diverse and complex security situations, improving our combat readiness through realistic training.

Game-changing advances in technology cannot be accomplished without our talented workforce. Last year, our Secretary and Chief signed two documents that show our commitment and determination to improve our technical workforce. They signed an Air Force Engineering Enterprise Strategic Plan and an Air Force STEM Workforce Strategy. In these documents, Secretary James asks Airmen to seize every window of opportunity to improve their technical skills through training and education. The Chief encourages Airmen to embrace the innovation culture and continue to be “STEM ambassadors” in their communities. They both understand that attracting and developing technical talent in our workforce is critical to our continued innovation and ability to adapt to future threats.

In closing, the Air Force 2016 President’s Budget request for science and technology ensures we continue to be responsive, revolutionary, and relevant to our mission. On behalf of the dedicated scientists and engineers of the Air Force S&T enterprise, thank you for the opportunity to testify today and for your continued support of the United States Air Force S&T Program. I look forward to answering any questions you may have.