

FY2011 Defense Appropriation and Authorization Requests

Senator Charles E. Schumer

109th Airlift Wing NP-2000 8 Bladed Propeller System Improvement Program Schenectady Military Affairs Council; Schenectady, NY; \$8,500,000

The funds requested would enable the 109th Airlift Wing to procure propeller systems for the 5 LC-130 ski-bird aircraft owned by the Air National Guard in support of the National Science Foundation (NSF) Polar mission. NSF is funding the retrofit for the aircraft which are owned and operated by the 109th. Funding for this project would enable the 109th to standardize its LC-130 fleet of aircraft with the NP-200 8 bladed propeller system. This retrofit of the LC-130s, located at Stratton ANG Base in Schenectady, would benefit the taxpayer by providing significant improvement in take-off performance, flight safety enhancements as well as significant fuel utilization improvements.

Advanced Technology for Networked Autonomous Unmanned Systems Rochester Institute of Technology; Rochester, NY; \$4,000,000

The objective of this research program is to advance the readiness and capabilities of autonomous military platforms, such as airborne drones and silent surveillance sentinels. RIT's Center for Integrated Manufacturing Studies proposes to address a serious gap in today's technologies related to autonomous systems focusing on technology development, allowing the networking of multiple autonomous systems - ground, air and sea - to be able to collaborate on complex tasks. Robust designs for autonomous platforms and support processes, along with enhanced controls and collaborative behavior, would benefit taxpayers by yielding significant advantages in mission performance, reduced cost of operation and reduced manning and operational risks for multiple military platforms.

Anthrax Vaccine Research

Albert Einstein College of Medicine; New York, NY; \$500,000

This funding would be used to develop a safer and more effective vaccine against anthrax. Initial research indicates that it may be more effective to vaccinate military personnel against anthrax with a peptide vaccine. Because anthrax remains a deadly biological weapon, developing a better vaccine will benefit the taxpayer by better protecting the men and women of the Armed Forces and the American people.

Arsenal Support Program Initiative

Arsenal Business & Technology Partnership; Watervliet, NY; \$9,500,000

ASPI is a nine-year-old program that funds building renovations, site planning, job training and marketing programs designed to attract private businesses to use underutilized facilities at Army arsenals including Watervliet, NY. These efforts support the Headquarters, US Tank-Automotive and Armaments Command initiative to reduce Industrial Mobilization Capacity costs, enhance essential skills and support infrastructure improvements. The Army's most recent (FY2009) ASPI audit concluded that since its creation in 2001 the ASPI Program has benefited the taxpayer by generating a total economic impact of \$813 million and creating or sustaining 1,182 jobs.

Bio-Waste to Bio Energy Project

SUNY Cobleskill; Cobleskill, NY; \$3,500,000

This funding would be used to test a process to convert biowaste, such as animal and municipal solid waste, to clean energy, and to develop a mobile application of the technology for use in the fields by U.S. troops. Successful application of this process would benefit the taxpayer by reducing reliance on fossil fuel, reducing the cost of transportation and disposal of solid biowaste and reducing fuel transportation costs.

Center for Healthcare Informatics Effectiveness (CHIEf)

CUBRC; Buffalo, NY; \$3,000,000

This funding would go to create a Center for Healthcare Informatics Effectiveness (CHIEf) to research and develop the viability and effectiveness of a Systems Approach supporting Military health care providers with information that will lead to a new paradigm of total healthcare delivery. Advances in ongoing Department of Defense research in the areas of situational awareness, impact assessment and preparedness/readiness can benefit the taxpayer by making tremendous improvements in the delivery of the best medical services to our Armed Forces.

Center for Integrated Neurotrauma Research

University of Rochester; Rochester, NY; \$6,000,000

Traumatic injury to the nervous system is a major medical issue among warfighters. This project would integrate multiple leading efforts on the treatment of traumatic injury to the nervous system. Funding this project would enable development of potentially transformative interventions for these afflictions. Thus, all therapies would be rationally integrated in combinations that would synergize to yield levels of recovery that cannot be obtained with single interventions. This project would benefit the taxpayer by enhancing diagnostics and treatment strategies for individuals suffering from traumatic injury and enabling more effective prediction of the potential for recovery.

Combined Chemical Oxidation and Bioremediation Research Project

Clarkson University; Potsdam, NY; \$850,000

This project would benefit the taxpayer by enabling the Department of Defense to address the challenge of remediating contaminated soil and groundwater at military sites throughout the nation using Combined Chemical Oxidation and Bioremediation technology. With further understanding of the factors that impact the efficiency and effectiveness of this combined remedy, the Department of Defense could readily employ this technology to remediate soil at a large percentage of the contaminated sites in their care.

Cyber Center for Innovation & Education

Mohawk Valley Community College; Utica and Rome, NY; \$5,000,000

The Cyber Center for Innovation and Education's (C2IE) mission is to identify critical cyber security challenges and develop next-generation technology and leaders that will bring about revolutionary solutions to these challenges. To accomplish this mission, the C2IE would establish a "Center of Excellence" co-located with the Air Force Research Laboratory (AFRL) on the Griffiss Technology Park in Rome, NY. The Center would be an environment for collaborating on research and development, and integrating the latest "best of breed" cyber security technologies, resulting in increased awareness through education on the latest threats along with solutions to counter the threats. This project would benefit the taxpayer by enabling AFRL to quickly test and validate cyber security technologies.

Cyber Security Shield Initiative

State University of New York Institute of Technology; Utica and Rome, NY; \$5,500,000

Computer network security is an acknowledged national research priority, affecting a wide range of critical infrastructure components in modern society, including law enforcement, reliable power, safe transportation, secure finance, confidential communications, and diverse business activities. Especially vulnerable are mobile networks. This funding would support research and education combining industry and academia in a partnership to help solve this national problem. This program would benefit the taxpayer by creating solutions to cybersecurity threats and developing an infrastructure for cybersecurity education.

Cyclotron at the UB Clinical and Translational Research Center

University at Buffalo; Buffalo, NY; \$4,645,000

Funding is requested to procure a PETTrace cyclotron to synthesize radiopharmaceuticals for imaging. This equipment would support preclinical and clinical translational molecular imaging with positron emission tomography (PET). Molecular imaging holds enormous promise for understanding mechanisms of disease, which would lead to the development of novel therapies, particularly for cardiovascular disease, cancer and neurological disorders. The Buffalo Clinical and Translational Research Center (CTRC) would have a state of the art imaging facility, including a PET scanner. A cyclotron is required to produce the radiopharmaceuticals that are used in the PET scanner to create images. The cyclotron would benefit the taxpayer by expanding the capability to perform research in two priority areas for the Department of Defense: cancer and neurological disorders including traumatic brain injury (TBI).

Detection of Biologics in Water for National Defense

New York State College of Environmental Science and Forestry; Syracuse, NY; \$3,500,000

The ability to detect manmade or natural toxins in inland or coastal waterways is an important component of overall force protection and protection of the civilian population, and is beneficial to the taxpayer. This funding would support research and demonstration of biosensors to protect water and air systems against toxins. Funding would enable the demonstration of sensors on buoys, submerged fixtures, and potable water pump stations to provide real-time and near-real-time indications and warnings of the presence of naturally occurring and introduced toxins, bacteria and chemicals in municipal air and water supplies, treatment facilities and HVAC systems.

Energy Efficient Electronic Systems

Binghamton University; Binghamton, NY; \$6,000,000

Reducing energy usage and increasing energy efficiency are critical national security issues. This project would enable data centers and electronic systems to operate efficiently and securely. New computer power usage predictions would be developed using dynamic analysis to predetermine power needs, and improve energy-efficiency. By conducting pilot projects with industry, this project would demonstrate the performance of new energy efficient practices and technologies for military applications. This program would benefit the taxpayer by assisting the Department of Defense with improving the thermal management of its electronic systems, decreasing its energy consumption, and increasing the safety and security of its electronic systems.

High Voltage/High Capacity Electrode Materials for Lithium Ion Batteries Utilizing Nano Crystal Scission Processing

Binghamton University; Binghamton, NY; \$3,850,000

This project proposes to develop battery materials that can achieve the high military performance standards. This would provide the Department of Defense with an additional tool for optimizing performance of battery materials across its research portfolio. This program would benefit the taxpayer by providing the Department with access to batteries that are smaller, lighter, safer, and longer-lasting than any lithium batteries available on the market, with greatly extended duty cycle and survivability for applications ranging from handheld devices to unmanned aerial vehicles.

Highland Falls - Fort Montgomery Central School District Education Assistance

Highland Falls - Fort Montgomery Central School District; Highland Falls, NY; \$4,000,000

The Highland Falls School District in New York is host to the U.S. Military Academy at West Point and is responsible for the education of children of West Point faculty and staff. The school district's ability to meet its core mission is threatened by the fact that more than 75% of the school district's taxable land is owned by the federal government and more than 17% is comprised of state parklands leaving only 7% of land available for taxation to support school funding requirements. Because of this, the school district is suffering tremendously. Their Fiscal Year 2010-2011 budget is bare-bones: most non-essential programs have been cut and teachers and staff have been let go. Highland Falls' residents are facing a property tax increase of more than 18% on the already-highly taxed town to support the school district. The funding would be used for classroom instruction, supplies and equipment, technology, and maintenance. The funding would benefit the taxpayer by improving the education of the children of West Point faculty and staff.

Infotonics Defense Sensor Research

Infotonics Technology Center; Canandaigua, NY; \$4,000,000

Multispectral and Hyperspectral imaging technologies would enable the warfighter to more easily identify and respond to the presence of chemical and biological threats. This is of particular importance in the identification and defeat of improvised explosive devices, or IEDs. Current technologies are bulky and not field deployable, limiting their effectiveness. This funding would benefit the taxpayer by supporting research and development of miniaturization technologies to allow for a wider deployment of handheld or head-mounted technologies.

Institute for RNA Science and Technology (IRNAST)

University at Albany, State University of New York; Albany, NY; \$1,000,000

RNA therapies are on the cutting edge of human disease research. RNAs now occupy the center stage of post-genomic (post-DNA) biomedical research because they are exceptional targets and tools to treat diseases not approachable by existing drugs. IRNAST is a unique initiative to develop innovative medicines, vaccines, and medical technologies using RNA. This funding would benefit the taxpayer by providing the resources and impetus for early phase, novel RNA-based drug discovery, diagnostics and delivery systems for diseases affecting both military and civilian personnel.

Nanotechnology for Next Generation Portable Power

Stony Brook University & Farmingdale State College; Stony Brook and Farmingdale, NY; \$3,400,000

This funding would support engineering of advanced nanocomposite battery materials that would enable

the use of low intensity, addressable, beamed wireless power to remotely recharge mobile distributed power storage on portable electronics or medical devices. The system would provide continued power to essential portable electronics without human intervention. The beamed power can be addressable, encrypted, and secure. This system would benefit taxpayers by allowing batteries to recharge wirelessly.

Network-centric Communications Using All-digital Radio Frequency Systems

University at Albany College of Nanoscale Science and Engineering; Watervliet, NY; \$3,500,000

This project would develop an advanced superconductor electronics-based prototype for the U.S. Navy. Digital superconductors provide many advantages over today's semiconductors providing faster computational ability, less energy usage and more secure communication transmissions. Completion of this research and development effort would result in the delivery of a multi-use advanced superconductor working prototype platform to the Office of Naval Research with an increase in performance while cutting energy consumption. This would benefit the taxpayer by leading to lower cost and higher quality commercial wireless systems and highly secure, seamless military communications.

Malware Research Technology Demonstration & Validation Facility (MRTD&VF)

Griffiss Institute; Rome, NY; \$1,800,000

This project would create a collaborative environment for cyber research and a center for product development, testing, and validation against operational user requirements prior to applications being sent to field units for full beta testing and operational implementation. The end result is to reduce the time required to move cybersolutions from the laboratory to operational implementation. This funding would benefit the taxpayer by creating a facility that would be an open-access, collaborative research facility focused on test and validation of cyber security technologies.

New Storage Technologies for Integration into Miniaturized Electronic Systems

Binghamton University; Binghamton, NY; \$3,000,000

This funding would support development and testing of next generation munitions technologies. Research would focus on making energy storage devices flexible to fill a current technology gap. This funding would benefit the taxpayer by providing munitions and projectiles with a new capability to help save warfighter lives.

Personal Status Monitor

Syracuse University; Syracuse, NY; \$5,000,000

This funding would allow for further development of smart sensing technologies to monitor the health status of a soldier, remotely communicating the data to obtain the most appropriate level of care in a forward combat environment, which is essential for medical and military strategic decision-making. This funding would benefit taxpayers by creating applications for deployment on individuals or groups of individuals who are subject to catastrophic physiologic events such as military personnel, public safety personnel and those with cardiovascular disease.

R&D: Energy Efficient Tent Technology/Insulated Tent

Binghamton University; Binghamton, NY; \$3,000,000

This research and development project would focus on Energy Efficient Tent Technology to achieve a 50% reduction in tent energy consumption and up to 75% reduction in fuel needs. This project would

expedite industry efforts already underway to address energy efficiency and conservation necessary to support the Department of Defense's expeditionary forces, which require mobile shelter development to move quicker and lighter out in the field. This project would benefit taxpayers by reducing energy costs for the Department of Defense.

Reintegration, Transition & Therapeutic Healing Center for Current & Former U.S. Military Patriot Hills at Saranac Lake; Saranac Lake, NY; \$7,221,000

Because of an increased number of multiple deployments and related stressors, military personnel and their families continue to suffer increased rates of divorce, suicide, spousal abuse, child neglect, depression and substance abuse. Patriot Hills at Saranac Lake would construct a reintegration and reentry center to provide a healing and nurturing experience where veterans and military families would have an opportunity to work and recreate with fellow warriors and peers in a cathartic atmosphere of respect, admiration and understanding. Working with soldiers and their families to increase soldier resiliency, prepare families for deployments, overcome trauma, and cope with reintegration and reentry issues is a benefit to taxpayers, service members and their families.

Restoring and Repairing Facial and Cranial Bone Lost or Damaged in Military Combat New York Stem Cell Foundation; New York, NY; \$1,500,000

The goal of this project is to create a kit that can be taken into the field to be used by surgeons as soon as possible after injury to treat and repair structural and cosmetic craniofacial damage. Once returned from combat, it would be possible to create personalized bone grafts that are specific to the patient's face including vascularized and functional craniofacial bones to replace any broken and damaged bones in the face. This funding would benefit the taxpayer by advancing research to treat traumatic head and facial injuries that result from accidents, domestic violence, and service in combat.

Small Wind Turbine Manufacturing in Columbia County for Civilian and Military Use Columbia Economic Development Corporation; Ulster County, Rensselaer County and New York City, NY; \$1,450,000

The project would advance research and development of small wind turbines and identify performance criteria for military applications in order to enable design and manufacturing modifications to meet military performance requirements. The project is responsive to the military's need to reduce dependence on fossil fuels, and would contribute to "dual-use" (civilian and military) applications of military-funded R&D so as to improve the economies of scale in producing for the military. This project is of value to the taxpayer because it would promote the development of innovative small wind technologies which are not limited by the transmission and permitting constraints that affect large wind and other large-scale renewables projects, furthering cost-effectiveness of small wind technology for military and commercial uses.

Ultraviolet Germicidal Irradiation Technology Development Initiative to Combat Bioterrorism and Infection in Military Settings

CNY Technology Development Organization; Syracuse, NY; \$2,250,000

This project would conduct research on the development of air sanitation technology that provides a defense against bioterrorism, biological Weapons of Mass Destruction and airborne pathogens that cause and spread infections within the military. It also significantly decreases energy costs because this device requires fewer air exchanges than current systems while providing an impenetrable defense against airborne germs. This project would benefit the taxpayer by advancing research of systems to protect

military and civilian populations from biological weapons.

Unmanned Systems Training Development

Binghamton University; Binghamton, NY; \$4,100,000

Funding would be used to develop more realistic simulation for Unmanned Aircraft Systems for use in the USAF PMATS mission training and future training systems. Funding these simulator fidelity improvements and capabilities would add required mission realism by incorporating more realistic training environments for operators. Funding would modify the current simulator environment to mimic a comprehensive set of operating conditions experienced in real world operations with leading edge technology. Development and employment of these enhanced capabilities would benefit the taxpayer by improving mission training.

U.S. Navy Pandemic Influenza Vaccine Program

Trudeau Institute; Saranac, NY; \$4,000,000

The development of effective preventative measures such as vaccines is an urgent military and public health priority as current vaccines against influenza have serious limitations in terms of their production, administration and, due to uncertainty in specific strain matches and other factors, their efficacy. This project would benefit the taxpayer by advancing the development of novel techniques for enhancing vaccine efficacy to promote Force Readiness and general health of the members of the Armed Services and their dependents.

Viral WMD: Protection and Treatment for the Warfighter

Hauptman-Woodward Medical Research Institute; Buffalo, NY; \$6,200,000

Weaponized viruses pose a significant and ever growing threat to warfighters and the civilian population at large. This project proposes to produce the knowledge necessary to deter potential virus attacks, protect the warfighter, and treat infected populations by striking the virus pre-infection and post-infection. This project would benefit the taxpayer by protecting the warfighter and civilians from emerging and genetically engineered biological threats.

Women's Cancer Genomics Center at CSHL

Cold Spring Harbor Laboratory; Cold Spring Harbor, NY; \$10,000,000

The goal of this project is to develop a DNA biopsy test for breast cancer that would provide the most accurate prognoses and appropriate treatment recommendations for patients. This funding would be used for clinical studies to further this goal. Knowledge gained from these analyses would benefit taxpayers by lowering the costs of genome scans, making them suitable for clinical use.