

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE					
<b>3 - Advanced technology development</b>		<b>0603125A - Combating Terrorism - Technology Development</b>					
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	12953	12978	13064	13184	12671	12745	13123
DF3 CONSEQUENCE MANAGEMENT & RECOVERY	1066						
DF5 AGILE INTEGRATION & DEMONSTRATION	11887	12978	13064	13184	12671	12745	13123

**A. Mission Description and Budget Item Justification:** This program element (PE) funds efforts to accelerate technologies with high payoff to address current operational shortfalls and assist deliveries of Future Force oriented projects into current operations capabilities. Survivability and Denial, Project DF1 demonstrates a survivability planning capability and lightweight low-cost blast/ballistic protective measures. This increases base camp survivability of personnel and equipment against advanced conventional weapons and terrorist threats, reduces logistics requirements, and enhances the capability of the Future Force in low-intensity conflicts and peacekeeping operations. Agile Integration and Demonstration, Project DF5 funds critical technology acceleration efforts of selected high-payoff technologies emerging from work in other PEs that have potential to fill emerging capability gaps requiring immediate action. Project DF5 also includes the Rapid Equipping Force (REF) effort to develop a Transportable Hybrid Electric Power Station (THEPS). THEPS incorporates solar technology, wind technology, advanced storage technology, and intelligent power management technology to reduce use of fossil fuel generators. Intent of these alternative power sources is to reduce the tether of fuel resupply. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy and the Army Science and Technology Master Plan. W

ork in this PE is performed by the US Army Engineer, Research, and Development Center headquartered at Vicksburg, Mississippi and Research, Development, and Engineering Command (RDECOM), and the Rapid Equipping Force (REF), Ft. Belvoir, Virginia.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE		
<b>3 - Advanced technology development</b>	<b>0603125A - Combating Terrorism - Technology Development</b>		
<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	8503	13061	13148
Current BES/President's Budget (FY 2009)	12953	12978	13064
Total Adjustments	4450	-83	-84
Congressional Program Reductions		-83	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	4686		
SBIR/STTR Transfer	-236		
Adjustments to Budget Years			-84

FY07 increases consist of an effort for HMMWV improvement program and an IFF effort. These IFF funds were made available to fund a near-term, prototype power solution that will result in a more capable on-board mobile power system consisting of a higher ampere alternator and a Commercial Off-The-Shelf (COTS) inverter. New capabilities to detect and counter enemy threats installed on Armored HMMWV (UAH) and the RG-31 Combat Utility Vehicles (CC-0120) in use in Iraq and Afghanistan demand greater voltage and amperage than legacy vehicle platforms can provide.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>3 - Advanced technology development</b>		<b>PE NUMBER AND TITLE</b> <b>0603125A - Combating Terrorism - Technology Development</b>					<b>PROJECT</b> <b>DF5</b>	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
DF5 AGILE INTEGRATION & DEMONSTRATION	11887	12978	13064	13184	12671	12745	13123	

**A. Mission Description and Budget Item Justification:** This project allows the Army to exploit emerging technology from across the Army Research Community and focus those technologies on addressing current warfighter needs. Efforts derive from successes of the Research, Development, and Engineering Command (RDECOM), the Army Corps of Engineers Research and Development Center, the Medical Research Materiel Command, and the Space and Missile Defense Command. Successes emerging from Department of Energy (DOE) Laboratories are also potential AIDE projects. This effort allows research activities to team with Program Managers and the Rapid Equipping Force to accelerate technology maturation and ready technologies to transition to the operational environment. Short term maturation could include, but is not limited to, accelerating the technology development schedule and/or performing detailed safety and validation tests in field/operational environment testing to improve technology readiness. While not limited to these areas, major efforts under this project support the accelerated maturation of counter terrorism capabilities (detection, surveillance of deployment, and disruption/destruction of threat), and Soldier and Force Protection measures and well as emerging Energy Surety technologies for transition into an operational environment. Supported requirements are approved by TRADOC or the combatant commanders. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is managed by the US Army Research, Development, and Engineering Command, Ft. Belvoir, Virginia.

<b>Accomplishments/Planned Program:</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
In FY07, completed maturation, demonstration, and evaluation of several FY06 efforts. Those efforts include the development of game based software programs, providing enhanced Soldier training systems, to include the Every Soldier a Sensor (ES3) training system and a Tactical Combat Casualty Care (TC3) training system to provide combat medics a virtual environment for realistic, tailorable training. The TC3 training system is being used in basic training of all combat medics as well as distance learning by all medics worldwide. The ES3 system is now deployed to Fts. Jackson, Benning, Sill, Campbell, Lee, Leonardwood, and OIF and OEF and available on line through AKO to authenticated users. Completed significant operational enhancements to the Mobile RAID surveillance system (EMRAID) including integrated navigation, FBCB2, UTAMS, and voice communications followed by an in-theater evaluation, integrating the advance capability into the Cougar route clearing vehicle for extended use in OIF and/or OEF. Delivered a uniform solution using improved flame resistant materials. Matured and demonstrated force protection effort including add-on armor to provide additional protection to route reconnaissance vehicles and built prototypes and conducted operational testing of enhanced ballistic protection for Engineer bridge erection boats. Matured and demonstrated a small, easily portable oxygen concentrator for patient treatment and transport. Demonstrated Soldier and operational enhancements in a PC-based bilateral Negotiation Environment Simulation (BLNE) to provide realistic comprehensive language and cultural training for Soldiers and officers deployed to a foreign country.	7207		
In FY07, designed and developed a concept cab for the HMMWV to improve force protection. Exploited various integration and feasibility strategies associated with integrating the cab on the HMMWV chassis. Fabricated four concept cabs for demonstration. Three concept cabs have been used for live fire demonstrations, the fourth was used to support system integration and for the human factors and	4680	7554	8173

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
<b>3 - Advanced technology development</b>	<b>0603125A - Combating Terrorism - Technology Development</b>	<b>DF5</b>	
<p>safety trials, load assessments, maintenance, to mature the design. In FY08, complete maturation, demonstration, and evaluation of FY07 efforts in preparation for transition to operational units. This effort continues to identify maturing technologies from within all Army R&amp;D Activities and the DOE, to accelerate the development of suitable technologies to the warfighter for demonstration, and experimentation. Projects to be initiated include the maturation, demonstration, and evaluation of overhead protection on the Gunners Protection Kit, a Soldier power manager system to reduce quantity and variety of batteries a Soldier must carry, a 3rd Generation FLIR (Forward Looking Infrared) LRS3 (Long Range Advance Scout Surveillance System), and two projects to increase the effectiveness of the Hellfire missile system. Emphasis continues to be on those areas that provide the operational forces increased protection and survivability, and meet the Operational Need Statements of the deployed forces in OEF and OIF. In FY09, will complete maturation, demonstration, and evaluation of FY08 efforts in preparation for transition to operational units. Will identify and mature through prototype development and testing of additional new technologies from all sources that can be accelerated to overcome the changing capability gaps and requirements shortfalls experienced by operational forces around the globe.</p>			
<p>The Rapid Equipping Force (REF) is developing a Transportable Hybrid Electric Power Station (THEPS). THEPS incorporates solar technology, wind technology, advanced storage technology, and intelligent power management technology to reduce use of fossil fuel generators. In FY08, incorporate spiral development of more efficient photovoltaic technology, wind technology, and more advanced algorithms for intelligent power management to provided increased power (10kw and 15kw) for THEPS. Larger size THEPS, enabling a flexibility in support for remote operations, tactical command posts, and temporary Forward Operating Bases (FOB). In FY09, will develop and demonstrate 10-15kw THEPS and will network THEPS into an intelligent power grid to provide more efficiencies and redundancies. Will evaluate THEPS effectiveness in field tests conducted at remote sites and operating bases.</p>			
<p>Small Business Innovative Research/Small Business Technology Transfer Programs</p>			
<b>Total</b>		<b>11887</b>	<b>12978</b>
		<b>13064</b>	