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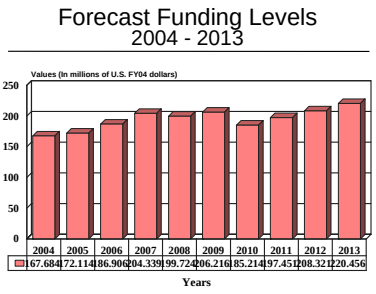
US Army Electronic Proving Ground - Archived 02/2004

Outlook

- Funding for the US Army Electronic Proving Ground is expected to remain stable
- Demand for modern electronic warfare devices will keep testing facilities like the US Army Electronic Proving Ground active
- Strong funding expected to continue throughout the forecast period



Orientation

Description. The US Army Electronic Proving Ground is a major field site for testing electronics/communications technology for use by the US Army.

Sponsor

US Army
Army Electronic Proving Ground (USAEPG)
Fort Huachuca, Arizona (AZ)
USA
Web site: www.epg.army.mil

Contractors

Computer Science Corp
Federal Sector - Systems Engineering Division
3170 Fairview Park Drive
Falls Church, Virginia (VA) 22042
USA
Tel: +1 703 641 2588
Fax: +1 703 204 8351
Web site: www.csc.com
(Maintenance/support)

Status. The US Army Electronic Proving Ground is in full operation.

Total Produced. Not applicable, since this project supports testing activities rather than development of specific equipment or systems.

Application. Field testing of electronics and communications systems, including Electronic Warfare (EW) systems, electro-optical systems, and C^3I systems.

Price Range. Not applicable.

Technical Data

Design Features. The US Army Electronic Proving Ground (USAEPG), located at Fort Huachuca, Arizona, provides a major field site for conducting technical tests of communications and electronics systems. USAEPG is unique within the US Department of Defense (DoD) because of the site's electromagnetically clean environment, expansive real estate, and low annual rainfall. Special facilities have been developed to accomplish the

USAEPG's mission of planning, conducting, evaluating, and reporting the results of development tests for communications, command, and control (C^3) systems, optical/electro-optical systems, signal intelligence systems, and electronic warfare equipment and systems.

The test facilities operated by USAEPG are numerous and varied. They include an electromagnetic environmental test facility, an electronic countermeasures vulnerability test facility, an unmanned aerial vehicle test facility, an antenna pattern measurement facility, an electromagnetic interference/electromagnetic compatibility/transient electromagnetic pulse emanation standard (EMI/EMC/TEMPEST) test facility, a communication test facility, an outdoor compact antenna range, a high-frequency test facility, a stress loading facility, and an electro-optical systems test facility.

The types of communications and electronics equipment that are tested at the USAEPG include manned and unmanned aircraft, avionics, aircraft survivability equipment, tactical radio transceivers, telephone switching centers, radars, navigation devices, cameras, tactical computers, jamming and anti-jamming devices, surveillance sensors, and radiological survey instruments.

Operational Characteristics. The USAEPG's general test philosophy combines testing in a computer modeling/simulation environment, in a hardware-in-the-loop environment, and in a controlled field test environment. According to the USAEPG, joining these three diverse types of testing into a common methodology allows for a synergistic interaction of test types and leads to a logical, economical systems test.

The USAEPG methodology allows the tester to initially investigate the system under test (SUT) as it functions in its entire postulated environment. This environment can include up to thousands of signals through the use of computer modeling/simulation techniques. After determining a valid subset (hundreds of signals) of the environment that needs to be investigated further, the SUT can be tested using the stress loading facility. The hardware-in-the-loop simulation identifies the need to test the SUT in an even smaller (10 to 100 signals) environment that can be economically represented in the field.

The USAEPG also allows virtual and synthetic tools and capabilities to be used, reducing test and program costs.

Variants/Upgrades

MAINSITE. The concept of a separate test and evaluation facility for US Army C^3 and computer systems has been in existence since the early 1970s. Efforts prior to FY83 were funded under the Electronic Proving Ground program. Preliminary engineering development of a separate facility for C^3 testing began in FY83, when MAINSITE was first funded as a separate line item. In FY84, MAINSITE was fully funded. The total amount requested over FY83 and FY84 was US$20.6 million.

The program was suspended at the direction of the Assistant Secretary of the US Army for Research, Development, and Acquisition in August 1985, pending a study of future testing of C^3I systems and the need for test instrumentation at Army development and test facilities. Unobligated prior-year funds were reprogrammed to other high-priority US Army programs. The US Army has not funded the program since that time. Testing of electronic systems reverted to the previous funding project at the USAEPG.

Program Review

The US Army Electronic Proving Ground was established in 1954, under the command of the US Army Test and Evaluation Command (TECOM), as an independent test and evaluation activity. Since its inception, the USAEPG has tested communications/electronics equipment intended for use by the US military services.

Looking back to FY92, USAEPG testing was conducted for unmanned aerial vehicles (short range), EH-60A (Quickfix II), the Satellite Communications System, Army Tactical Command & Control Systems, MSE improvements, and global positioning systems (GPS). Testing of these systems continued into FY93. Also in FY92, funding for the Battlefield Electromagnetic Environment Office was transferred from Operations and Maintenance, Army (OMA) to RDT&E. Further efforts were made to create, develop, and maintain databases for standard tactical deployment scenarios – these efforts would continue for several years. Approximately 113 civilian, 142 military, and 95 contractor personnel were employed in support of this project.

Approximately 145 tests were conducted in FY93. Some of the systems tested included GPS receivers, UAVs (short range), integrated survey instrumentation, the Enhanced Position Location Reporting System (EPLRS), GUARDRAIL, the Joint Tactical Information Distribution System (JTIDS), the All Source Analysis

System (ASAS), and the Army Tactical Command & Control System (ATCCS). In FY94, approximately 160 similar tests were conducted, including the Combat Service Support Control System, the Automated COMSEC Management Engineering System, US Army JSTARS, and the Quick Erection Antenna Mast (QEAM).

The project assumed a new financial outlook in FY95 with the US Army's decision to consolidate management of the Electronic Proving Ground under Project DE93, White Sands Missile Range, located in New Mexico. White Sands is the US DoD's largest all-purpose overland test range and supports the testing of ballistic and guided missiles, air defense systems, and artillery missile systems for all services.

Both the EPLRS and SINCGARS systems were tested at USAEPG in FY95, as was the Intelligence and Electronic Warfare Tactical Proficiency Trainer. In addition, modernization projects were conducted under the following program titles: Communications & Electronic Scenario Generation Software, Improved Data Reduction System, Encrypted Secure Database Network, Upgrade for Distributed Node Network Hub, and Upgrade to Radar Imaging Technology.

One system-level program was tested at the USAEPG in FY96 – the ATCCS. Interference cancellation technologies were tested as well. Also, funds were used to modernize test facilities and equipment to maintain current test capabilities and improve the safety of test operations and to make test more environmentally and technologically sound – an effort that continued into FY97.

Key tests were conducted in FY97 of the All Source Analysis System (ASAS), the Near-Term Digital Radio (NTDR), the Brilliant Anti-Armor (BAT) submunition P^3I (Pre-Planned Production Improvements), and the Command and Control Vehicle. SINCGARS technical testing was concluded in FY97.

US DoD funding underwent further restructuring the following year. In FY97 it was announced that nearly all of the various projects funded separately within PE#0605601A would be consolidated under the newly created Project DF30, Army Test Ranges and Facilities, beginning in FY98. This reflected TECOM's revised mission as test integrator under the Army's new test and evaluation process. A new project, Non-Major Systems Test Design and Evaluation (D699), was established to finance the FY97 consolidation of the US Army's materiel evaluation mission under the Operational Test and Evaluation Command (OPTEC).

Under the newly created Project DF30, Army Test Ranges and Facilities, the following activities were undertaken during FY98: command-wide integrated test planning, safety assessments, and testing (previously funded under DE90, DE91, DE93, D618, D630 and D632); participation in over 760 integrated product team efforts; and the issuance of over 350 safety releases and over 100 safety confirmations. Systems tested included the Wide Area Mine (Hornet), naval ship structures, and the Longbow HELLFIRE missile, as well as Comanche helicopter subsystems.

In FY98, Project D699, Non-Major System Design and Evaluation, focused on the following projects: non-lethal ammo family, suite of integrated radio frequency countermeasures, Trailblazer, Air Warrior, the Joint Biological Detector, and other efforts.

In FY99 Major Defense Acquisition Programs were evaluated, and the Major Automation Information Systems Review Council (MAISRC) and In-Process Review (IPR) programs were studied prior to making major milestone decisions and materiel changes in support of Army force development. Other efforts addressed the following programs: Suite of Integrated Infrared Countermeasures (SIIRCM), Advanced Field Artillery Tactical Data System (AFATDS), Crusader, Army TACMS Block II/BAT (BAT-$P^3$1), and Land Warrior.

Activities in FY00 were focused on further command-wide test planning and safety assessments. Some of the major systems tested were FIREFINDER P^3I, STINGER RMP PIP, Army Tactical Missile System (ATACMS) Block IIA, Theater Missile Defense (TMD), Theater High Altitude Area Defense (THAAD), BAT, the Multiple Launch Rocket System (MLRS), the Single Channel Anti-Jam Man-Portable (SCAMP) Block III system, aircrew integrated systems, and the GUARDRAIL Common Sensor. Finally, both the FY00 and FY01 schedules called for airborne engineering evaluation support activity.

Some of FY01's scheduled activities addressed the Wide Area Mine (HORNET) system, the Comanche helicopter subsystems maneuver control system (MCS), ATACMS, TMD, THAAD, BAT, tube-launched optically tracked wire-guided (TOW) missile PIP; SMART-T Forward Area Air Defense Command and Control systems; AFATDS; Land Warrior Ground Combat Identification; and Aircrew Integrated Systems.

Programs currently being evaluated at USAEPG include JTIDS, the Multifunctional Information Distribution System (MIDS), the tactical Internet, and the Simulation Testing Operations Rehearsal Model (STORM).

Funding

US FUNDING

	FY02		FY03		FY04		FY05	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
US Army RDT&E PE#0605601A Army Test Ranges and Facilities Project F30 Army Test Ranges & Facilities	-	115.5	-	130.7	-	167.7	-	172.1

	FY06(Req)		FY07(Req)		FY08(Req)		FY09(Req)	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
US Army RDT&E PE#0605601A Army Test Ranges and Facilities Project F30 Army Test Ranges & Facilities	-	186.9	-	204.3	-	199.7	-	206.2

All US$ are in millions.

Source: Descriptive Summaries of US ARMY RDT&E FY 2004/2005 Budget, February 2003

Recent Contracts

Contracts for work performed at the test range are difficult to identify because USAEPG is a government facility, not a private company.

Timetable

Year	Major Development
1954	USAEPG established
FY85	MAINSITE terminated
FY91	Compact Range Antenna Test Facility enhancement
FY95	Project management consolidated under WSMR
FY98	Project management shifted again, under TECOM integration effort
FY99	New project, D302 - Army Evaluation Center, formed

Worldwide Distribution

This is **US Army** program.

Forecast Rationale

With its electromagnetically clean environment, expansive real estate, and low annual rainfall, the US Army Electronic Proving Ground (USAEPG) offers the ideal conditions to plan, conduct, and analyze the results of technical tests for command, control, communications, computers, and intelligence (C^4I) systems; signal intelligence; and electronic combat/electronic warfare equipment.

Located in southeastern Arizona, USAEPG is unique because of its naturally quiet electromagnetic environment, its unique specialized facilities, and its close relationship with the Army training community. Operations are routinely conducted on 70,000 acres at Fort Huachuca, 23,000 acres on Wilcox Dry Lake, more than 100,000 acres at Gila Bend, and, with prior coordination, approximately 62 million acres of federal- and state-owned land. The site provides a wide range of test, experimentation, and evaluation services to government and commercial organizations throughout all phases of the development cycle.

Funding requested for US Army Test Ranges and Facilities, which includes the USAEPG, has increased by US$30.6 million between 2003 and 2005. As the modern military's dependence on electronic devices increases, so increases the need for testing and evaluation facilities like USAEPG. Due to this growing dependence, it appears that funding for US Army test ranges and facilities will remain strong for years to come.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR FUNDING ($ in millions)

				High Confidence Level				Good Confidence Level				Speculative			
Designation	**Application**	**Thru 03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**Total 04-13**
ARMY ELEC PROVING GROUND	PE#0605601A TESTING & EVALUATION (US ARMY)	900.477	167.684	172.114	186.906	204.339	199.724	206.216	185.214	197.451	208.321	220.546	1948.515