WSTIAC Support to the Department of Defense Energy and Power Technology Initiative (EPTI)

The Director of Defense Research and Engineering (DDR&E) has initiated the Energy and Power Technology Initiative (EPTI) – a comprehensive Department of Defense-wide effort to explore and develop advanced capability-enabling power technologies. This program is being carried out collaboratively among the DDR&E and the cognizant R&D organizations of the Air Force, Army, Navy, and Marine Corps, the Defense Advanced Research Projects Agency (DARPA), and other appropriate elements of the Department of Defense.

EPTI
Energy & Power Technology Initiative

Continued on Story 1

Viable Combat Avionics Initiative Digital Video Recorder (DVR) – Crosscutting Solution

WSTIAC has been supporting the US Air Force's Aeronautical Enterprise Program Office at Wright-Patterson Air Force Base, Ohio for the past three years under the Viable Combat Avionics (VCA) Initiative. This activity is focused on mitigating the effects of aging on high technology avionics equipment. As weapon systems remain in service longer, their long-term sustainment becomes difficult and expensive as original equipment manufacturers and other sources of supply decline. Complicating matters is an urgent and immediate need for the Air Force and other services to control and reduce operation and support costs of an increasingly aging fleet. Radical policy changes to the way weapon systems are designed, procured, and sustained from both a technological and business practice standpoint are being tested.

Continued on Story 2

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WSTIAC Support to the Department of Defense Energy and Power Technology Initiative (EPTI) (continued)

The specified program focus is on the identification of technical objectives, quantified technical barriers, and enabling technologies associated with development of advanced energy and power components and systems.

This includes activities focused in the major taxonomy areas of: (1) Power Generation (e.g., Fuel Cells, Combat Fuel Reforming); (2) Energy Storage (e.g., Batteries, Capacitors); and (3) Power Control & Distribution (e.g., Switching & Conditioning, Transmission & Distribution, Thermal Management). The resulting evaluations and database produced will help meet the needs of each of the Military Departments and, in so doing, identify opportunities for collaborative development of common components or subsystems vital for the eventual fielding of advanced weapons and their platforms—such as Hybrid Electric Vehicles (HEV), Electric Ships, Electric Airplanes, Directed Energy Weapons (DEW), and Electromagnetic Guns (EMG).

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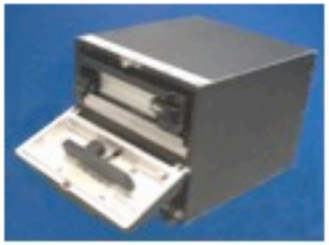
Viable Combat Avionics Initiative
Digital Video Recorder (DVR) – Crosscutting Solution (continued)



An immediate and urgent Air Force need was identified during the avionics integrated change road-mapping process performed under the VCA program. It was determined through the viability analysis process that many different aircraft platforms were using videotape cockpit recorders that were no longer being supported by the original equipment manufacturers (OEMs). Each weapon system platform and associated maintenance organization was on its own to find a means to keep the system operational or be forced to fly without the capability. WSTIAC, working with the Aeronautical Enterprise Program Office, identified four commercial-off-the-shelf digital video recorder systems that could potentially be tailored to fill this requirement. These digital replacements also offered recording capabilities in addition to video, including MUX data, aircraft structures, mission replay, electronic combat, etc.

A pilot program was developed to investigate potential design alternatives and prove the concept. WSTIAC worked with the F-16 Air National Guard at Ogden, Utah to develop the detailed requirements as the F-16 platform expressed the most urgent need. The acquired solution also works on A-10 and F-15 platforms. This activity was driven by parts obsolescence and not necessarily economics. However, Return on Investment (ROI) studies have determined that a 2-to-1 cost savings over the original video recorder equipment will be realized as a result of the tremendous improvement leading to overall life cycle cost avoidance.

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