

# ARNOLD ENGINEERING DEVELOPMENT CENTER



## STRATEGIC PLAN

**2003**

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# COMMANDER'S STATEMENT

The US military is adapting to profound changes in the nature of conflict and the conduct of war brought about by the post-9/11 era. More than ever, the Department of Defense (DoD) and the United States Air Force (USAF) must transform to preserve our current advantages and to provide the Nation with the technology it needs, when it needs it, to meet the many varied threats to our security. Foremost, our culture, our training and our doctrine must all adapt to keep up with the fast pace of technological change in the modern world.

The future is full of uncertainty so Arnold Engineering Development Center (AEDC) must be innovative, adaptive and responsive in order to meet the increasing demands of our customers. This strategic plan strives to codify our understanding of the capabilities they'll need and that we must maintain and develop in order to fulfill our modern role. It is intended to help all AEDC employees understand where the organization is going, in terms of organization and capabilities and how they can help us to get there. With that understanding, the AEDC workforce can work together to give our customers the insight they need in an "easy to do business with" way. Therefore, this document doesn't define a narrow path; rather it lays out a broad framework to provide the flexibility and tactical responsiveness we'll need to meet warfighter support requirements as they evolve.

This plan is the basic document to be used in setting annual performance expectations, in determining investment and technology plans and in development of periodic submissions to the DoD/USAF planning, programming, budgeting and execution process. We must ensure all our actions are additive and coherent. This is the best way to ensure we are efficient as well as effective and we secure a bright future for AEDC and continued air and space superiority for the nation.

## MISSION

AEDC's ultimate product is knowledge that leads to insight for our customers and speedy deployment of advanced technology to the warfighter. The center's staff is an innovative team of approximately 300 Air Force (AF), Navy, and Army personnel and 2300 private sector contractors. The Center's mission reflects a commitment to be at the leading edge of aerospace development and operations:

AEDC is a national aerospace ground test facility that conducts tests, engineering analyses, and technical evaluations for research, system development, and operational programs of the Air Force and Department of Defense, other government agencies, and industry. Using ground test facilities, AEDC supports propulsion, aerodynamic, reentry, transatmospheric, and space flight systems testing. Testing is performed in an environment that simulates operational conditions. AEDC performs research to develop new technology for advanced test facilities, test techniques, and measurement methodologies associated with ground testing.

## PLANNING ENVIRONMENT

### GUIDANCE

AEDC will face demanding challenges in the years ahead. At the core of AEDC's Strategic Planning is the premise that our strategies must be tied directly to those of Air Force Material Command (AFMC) and the AF. The primary guidance used to develop this plan was provided by the AF Vision; the AF Strategic Planning Guidance, the USAF Transformational Flight Plan with an emphasis on supporting the

Key Transformation capabilities; the USAF Concept of Operations (CONOPS); and the HQ AFMC Strategic Plan. These documents together communicate the environment that we will be operating in, and therefore must plan for.

The USAF, in attempting to respond to the intent behind the DoD efforts in transformation, has taken the existing Expeditionary Air Forces operating construct, and used that to create a system that allows a dynamic and relevant analysis of what capabilities will be required in the future. The various missions that the USAF anticipates it will be asked to fulfill in the future have been broken up into seven distinct groups. Each group in turn developed a CONOPS relevant to their associated missions. The CONOPS communicate how the USAF intends to meet the requirements driven by each of these types of missions. Systems, in turn must provide capabilities that are relevant to one or more of these CONOPS. The DoD has also begun to fundamentally change the way in which it acquires new systems, moving away from the traditional acquisition model to one of spiral development. This change is intended to drive relevant capabilities to the warfighter much faster, with an emphasis on continual evolutionary improvement of the system after it is initially fielded.

In light of the AF push to work in this capabilities-based planning environment, and within the spiral development acquisition model, we look first at the external situation, that is which war-fighting capabilities are required and how they can be provided. These external, capability-driven, factors can be described as our opportunities and threats. After identifying what capabilities are required, then we can look at our existing capabilities, personnel, and responsibilities and determine our strengths and weaknesses relative to the requirements.

## **OPPORTUNITIES**

Perhaps our greatest opportunity lies in partnering with other test organizations and our customers to build the insight needed for spiral development of warfighting technology. AEDC's facilities and modeling and simulation capabilities, combined with other test organization's capabilities, are a natural fit with evolving lean processes used by our customers.

There is a significant long-term requirement for test and evaluation services. In addition to the requirements of conventional programs, the space and hypersonic system innovations embodied in the National Aerospace Initiative and follow-on programs will require AEDC's best efforts. As homeland defense, nuclear space propulsion, and directed energy programs mature, AEDC's assets and competencies will play selected and important roles in support of the efforts.

We have the benefit of increasing support for recapitalization of national infrastructure. Programmed and potential increases in critically needed improvement and modernization, military construction, and maintenance budgets are a solid foundation for greater effectiveness and efficiency.

There is a growing government and industry trend toward consolidation of capabilities and collaboration of organizations. Notably applicable to AEDC is the Pratt-Whitney closure of the Will-Goose facility in favor of reliance on AEDC. National Aeronautics and Space Administration (NASA) and the Office of the Secretary of Defense (OSD) are initiating aggressive studies, which may lead to further government consolidation. AEDC has joined a regional collaboration with Marshall Space Flight Center and Oak Ridge National Laboratory that promises to strengthen all the parties.

AEDC can support US cooperation with foreign governments by offering critical test and evaluation support to military and commercial aerospace activity. This benefits the Center through increased revenue applied to sustainment of assets and skills.

## **THREATS**

Major threats that challenge AEDC's ability to sustain required capabilities and offer affordable and effective test and evaluation services include:

Uncertain sources of funding from customers and appropriations – Persistent program turbulence within a small customer base and declining operating budgets driven by significant competing requirements are a way of life for AEDC. The most immediate threat to AEDC is the potential for disturbance to the Joint Strike Fighter (JSF) program. The projected JSF test workload represents over half of the overall AEDC test workload during the upcoming three to five years. At the same time, new programs predict significant, and likely sporadic use of selected capabilities. The Air Force has programmed large increases in investment and maintenance accounts to enable the Center to meet customer needs. These accounts will be targets for reductions in the current environment.

Increased pressure on intellectual capital: A “bubble” in the aging workforce is approaching which will drive a significant loss of key technical personnel to retirement. National and regional entities are facing similar situations, and regional expansion of automotive and other interests is anticipated. At the same time there is a decline in the number of graduates skilled in disciplines important to AEDC.

Acquisition policy and implementation – Acquisition reform permit contractors to use commercial test facilities instead of Major Range and Test Facility Bases (MRTFB) facilities and to determine the extent of development testing, which potentially reduces the test workload, creates idle time in the test cells, and increases the unit cost of each test. In addition, reduced test workload results in highly qualified and skilled engineers and technicians finding work elsewhere, making them unavailable to support national priority programs when needed.

Security policy implementation – Generation, dissemination, and protection of sensitive information are inherent in AEDC’s mission. Customers require increased speed in acquiring contracts with test and evaluation suppliers and in accessing information. The policies and processes that protect sensitive information and technology are not keeping pace with these customer requirements.

## **STRENGTHS**

AEDC is well regarded for satisfying challenging technical and scheduling requirements. AEDC’s wide range of test capabilities and its highly skilled and motivated work force are primary strengths. Figure 1 contains an analysis of the technical value provided by the center’s wide range of testing capabilities and facilities. The analysis is presented for six classes of capability and the military mission areas served by that class. Specific test capabilities are noted parenthetically. Although many of the facilities are high-value, a few low-value facilities are identified and these are kept in a low state of readiness or closed. A world-class computational mechanics capability complements the test facilities and is integrated into the test processes and products. In addition to the center’s technical capabilities, our recently installed enterprise wide business management software enables us to accurately identify operational costs and readiness capacities related to each test facility. A commitment to achieve ISO certification of government and contractor operations will institutionalize continuous process improvement.

## **WEAKNESSES**

Our 50-year old infrastructure needs recapitalization. We are experiencing an ever-increasing rate of infrastructure failures impacting test customers and programs. In Fiscal Year (FY) 2000, we had nine major infrastructure failures; the average age of the failed infrastructure was 32 years. Our backlog of maintenance and repair is over \$140 million and will grow at the rate of \$10 million a year if programmed maintenance funds are not budgeted. Our workforce is also aging and due to the remote location of AEDC, we do not have a reserve bank of technical personnel being employed by other activities from which we could draw if needed. We also are working in an environment where many of the organizations that can benefit from our services do not even know about our capabilities, or have received outside negative feedback about AEDC based experiences from past programs, usually in the area of cost.

National Security Value	Technical Value of AEDC Wind Tunnel Capability			
	Disadvantaged	Threshold	Leader	Unique
High		S3 (Bird strike assessment)	16T (JI, FM, Scale) 16S (JI, FM, Scale, Mach Range) A/B/C/9 (FM, q-dot, Scale) 4T (Store separation, Mach range with CTS, acoustic bay)	16T (Missile prop., store separation) 16S (Missile prop., Mach, full-scale JI) A/B/C (Scale, cont. flow, separation) Tunnel 9 (q-dot, Scale, run time) 4T (IT&E via M&S)
Moderate				
Low	D (Non-operational) F (Non-operational) IT (Non-oper.) ART (Non-oper.)			

National Security Value	Technical Value of AEDC Aeropropulsion Capability			
	Disadvantaged	Threshold	Leader	Unique
High		T4 (Perform., Operability) T12 (Turboshaft)	J1/J2 (Performance, operability, and core testing) T11 (Cruise missile and small fan testing)	C1/C2 (Scale, flight envelope) T3 (Mach 4, High q, combustor capability) SL2, SL3 (Ram inlet environmental endurance)
Moderate				
Low	T1 T2 T5 T7 (Mothballed)	SL1 (Standby)		

National Security Value	Technical Value of AEDC Rocket Propulsion Capability			
	Disadvantaged	Threshold	Leader	Unique
High				J-4 (Size, altitude, soft blowback) J-6 (Size, altitude, soft blowback, safe site) APTU (scale, run time)
Moderate				
Low				J-5 (Soft blowback) J-3 (Soft blowback, mothballed) J-2A (450 kft altitude, 30-day cold soak; no-operational, deactivated)

National Security Value	Technical Value of AEDC Arc Heater Capability			
	Disadvantaged	Threshold	Leader	Unique
High				H1 (High Power, high stagnation pressure at size-95 atm) H2 (High pressure, high power, long run duration) H3 (Size, high pressure)
Moderate				
Low	HR (Mothballed)			

**Figure 1. Technical Value of AEDC Capability**

National Security Value	Technical Value of AEDC Ballistic Range Capability			
	Disadvantaged	Threshold	Leader	Unique
High				Range G (Large size projectiles, soft launch)
Moderate				
Low		Range S1		Range I/FPST (Evacuated chamber to 1 micron)-Standby

National Security Value	Technical Value of AEDC Chamber/Signature Capability			
	Disadvantaged	Threshold	Leader	Unique
High			AMSC (M&S, signatures measurements, analysis)	10V (Low background, size of optics) 7V (Low background, complex scene) FPCC (Low background productivity) Decade (Scale, power)
Moderate		Mark I (Scale) 12V (Solar, thrusters)		
Low				

**Figure 1. Technical Value of AEDC Capability, continued**

The planning guidance and SWOT (Strengths, Weaknesses, Opportunities, Threats) information are key to development of the Center Vision and Strategic Goals and Objectives. A high level summary of the SWOT information is provided in Figure 2.

<p><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>- Improved development insight through partnerships</li> <li>- Significant requirement for test and evaluation services</li> <li>- Growing support for infrastructure recapitalization</li> <li>- Consolidation of government and industry capabilities</li> <li>- Trend toward international cooperation</li> </ul>	<p><b>THREATS</b></p> <ul style="list-style-type: none"> <li>- Uncertain sources of customer funding and appropriations</li> <li>- National pressure on intellectual capital supply</li> <li>- Acquisition reform reduces use of capabilities</li> <li>- Information and technology security practices reduce customer responsiveness</li> </ul>
<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>- Good reputation for customer service</li> <li>- Wide range of high-value capabilities</li> <li>- Integrated computational mechanics capability</li> <li>- Skilled and motivated workforce</li> <li>- Enterprise business management tools</li> <li>- Commitment to ISO certification</li> </ul>	<p><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>- Infrastructure failure rates</li> <li>- Backlog of maintenance and repair</li> <li>- Aging workforce</li> <li>- Limited local supply of workforce</li> <li>- Reputation for high cost of service</li> <li>- Inadequate exposure to potential customers</li> </ul>

**Figure 2. SWOT Summary**

## AEDC VISION

### ‘Insight Through Partnership and Excellence’

An article written in February 2003 by Brigadier General (select) David Eichhorn, AEDC’s Commander, captured the essence of the Center’s vision and is reprinted below.

AEDC provides insight through partnership and excellence. This simple statement is the heart of why AEDC exists. Developers need knowledge (insight)

and AEDC is one link in the chain of developing that knowledge. We collaborate (partner) with others as needed to ensure our customers succeed in acquiring what they need to know. And AEDC is never satisfied resting on our laurels. We build on yesterday's accomplishments to make tomorrow's accomplishments even more impressive with improved technical and business practices (excellence). Continuous, unrelenting, improvement. AEDC provides insight through partnership and excellence is the AEDC Quality Policy and is the first step in our ISO 9000 certification. We all need to know and understand what it means. We've analyzed this in the past and determined that we provide knowledge to numerous people and organizations. Much like the BASF commercials on TV, we don't make the products - we make them better.

The first key word in our performance statement is insight. Webster's dictionary defines insight as: "the act or result of apprehending the inner nature of things or of seeing intuitively." Our insight is to find those areas where physics, (Mother Nature) is going to keep things from working the way the designer intended. Finding problems early in the design process is critical to affordably fixing the system.

But Britannica's definition of insight may actually serve AEDC better. It defines insight in terms of learning theory as "immediate and clear learning or understanding that takes place without overt trial-and-error testing behavior." I couldn't have said it better! We have a well-defined, disciplined approach to development testing of aerospace systems. After all, if all was already known then AEDC wouldn't be needed at all and walking on the moon wouldn't have taken a decade.

In the past we've called what we discover at AEDC in our facilities as "risk reduction knowledge." While that is certainly true, it makes what we do sound optional. The scope is optional but the process of learning is not. As long as America strives to improve its capabilities it's going to need a disciplined research and development process. AEDC along with our government and industry partners fill a critical need in the process. In today's complex, inter-related world, no single organization can do an adequate job alone in the development process. Excellence in all AEDC does means excellent coordination, excellent data, excellent communication and ultimately excellent insight into how systems under development work.

## **STRATEGIC GOALS**

Five goals developed on the basis of the planning environment are described below. Key to these stated goals is their enabling of not only strategic direction, but also of tactical responsiveness, positioning AEDC to succeed in the dynamic environments that exist today and The intent of the goal a set of outcomes is provided for each goal. The outcomes portray the Center's end state for the purpose of this plan.

### **TECHNICAL EXCELLENCE**

Ensure proactive and sustained technical excellence in providing accurate, safe, secure, timely, and efficient support to meet established requirements. Sustained technical excellence is essential for AEDC to execute its mission and increase its value to the nation and to its customers. Key results/outcomes of proactive and sustained technical excellence include:

- Customers receive high value, accurate, and reliable system development knowledge upon which they rely with confidence when making decisions. System development knowledge is the ultimate product to an AEDC customer. A customer engages AEDC with the intent to acquire data, information, and knowledge to aid them in the development, characterization, performance enhancement, or qualification of a system or to validate completion of development milestones.
- Sustainment of test and evaluation expertise and technology to support current and future weapon systems development using both traditional ground-test environmental simulation and computer simulations of weapon systems' performance. Experienced senior technical personnel provide technical leadership in the Center's core mission areas.
- Employment and advancement of Integrated Test and Evaluation (IT&E) techniques; the integration of computational modeling techniques (computer simulations) with ground test and flight test data to expand and enhance the utility of test results and/or to determine the next step in a test program. IT&E involves the correlation, validation and updating of computational models with both ground and flight test data.
- Outstanding customer relations. Effective customer relation activities garner the highest level of trust in AEDC's processes and services.
- Infrastructure operations, maintenance, and investments effectively support mission requirements at the least possible cost.
- Mission support services are responsive, effective, and efficient.
- Personnel are experienced, versatile and readily adaptable to the employment of new techniques, procedures, and technology.

## **EFFECTIVE MANAGEMENT AND PROCESSES**

Provide a fully qualified, experienced, and proactive management team committed to integrating and optimizing center-wide. Develop a relationship between the government and contractors that is built on open, honest communication and focused on the best interest of AEDC and its mission. Verify and measure performance to ensure delivery of results, support management and decision-making, and facilitate communications. Administer and deliver tasks through a documented set of disciplined, mature and continuously improving processes with a focus on cost-efficiency, responsiveness, and consistently high-quality delivery. Key results/outcomes of effective management and processes include:

- Assignment/maintenance of a proactive leadership team that is qualified in:
  - o Managing, operating, maintaining, and modernizing large, complex technical or industrial facilities;
  - o Managing the full spectrum of support services vital to AEDC's mission accomplishment; and
  - o Managing change to fully realize the potential gains while minimizing the unrest and disruptions that often accompany significant change.
- Processes are streamlined, well-defined, and incorporate performance measures that motivate high performance, facilitate timely decisions, and guide actions. Processes and procedures involve the minimum resource outlay to accomplish work while achieving schedule requirements and performance goals.
- Personnel and scheduling flexibility efficiently supports a dynamic requirements environment across all facets of AEDC's test and evaluation mission execution. Results include quick, efficient, and effective adjustment of labor and material resources.

- Teamwork is recognized as a hallmark of AEDC’s Government-managed, contractor-assisted business model. Effective lines of communication with all AEDC partners, customers, and interfacing contractors ensures effective mission execution.
- Use of industry best practices, standards, and models for operations, maintenance, engineering, and support functions reduce cost and enhance productivity within the context of laws, regulations, policies, and the AEDC environment. Waivers for those practices shown to be beneficial but prevented by current regulations and policies are proposed.

## **PERFORMANCE DEPENDABILITY**

Ensure high asset (test facilities, plants, support facilities, utility systems, and equipment) reliability, availability, maintainability, and configuration management. Key results/outcomes of performance dependability include:

- Interruptions to operations and services are minimal and mission objectives and customer satisfaction are attained. Operations, maintenance, investment, and base support actions are responsive, well integrated, and thoroughly coordinated with customer and Government interests.
- Advanced maintenance management techniques are employed and infrastructure performance data is used to drive decisions. Schedule execution reflects the benefits of proactive maintenance, well-planned lifecycle sustainment (modernization and upgrade), and configuration management of all assets.
- Maintenance and repair, improvement and modernization, and technology investments are effectively applied to eliminate gaps between current asset capability and forecasted needs. Existing infrastructure is reduced or modified and new infrastructure is recommended to meet mission needs.
- AEDC’s physical, environmental, and cultural assets are protected; AEDC maintains its leadership position in environmental stewardship.

## **EFFICIENT AND EFFECTIVE INFORMATION TECHNOLOGY**

Apply information technology, systems and processes that integrate and streamline information flow to facilitate timely management decisions, enable reliable facility operations, and provide high quality test and evaluation data. Key results/outcomes of efficient and effective information technology and systems include:

- Architectures, technologies, and standards promote horizontal integration of processes Center-wide.
- On-demand data access through a seamlessly integrated interface, to authoritative, relevant and sufficient information for all Government and contractor personnel to perform their duties efficiently and effectively.
- Management information systems interoperate with DoD information systems so that data flows smoothly to and from government standard information systems in a timely, reliable, efficient, and accurate manner.
- Data acquisition and facility control systems are effectively integrated to provide accurate data and safe, responsive facility operation.
- Full compliance with information security directives. Systems are protected from attack/or intrusion by both outside forces and internal disruption.

## COST REDUCTION AND CONTROL

Significantly reduce and aggressively control the cost of AEDC test and support operations and services while maintaining technical excellence within manageable levels of risk. Steward resources in the spirit of public service; identify needs and tactics to optimize efforts; and deliver test and support operations and services on time and within resource constraints. Key results/outcomes of cost reduction and control include:

- Cost reduction and other improvement initiatives produce substantial savings, productivity gains, and other qualitative benefits.
- Cost factors are traceable to work outputs and provide real-time information to support mission decisions. Cost data is collected to facilitate government cost allocation to customers.
- Timely and accurate cost accounting, thorough assessment, and sound recommendations to address anomalies.

## STRATEGIC OBJECTIVES AND ACTION PLANS

AEDC developed twelve objectives, with action plans and performance measures that support accomplishment of center goals. The objectives align with the goals as shown in Figure 2. The figure shows that an objective may support more than one goal.

Goals \ Objectives	Technical Excellence	Effective Mgmt & Processes	Performance Dependability	Efficient & Effective IT	Cost Reduction & Control
Deliver Customer Expectations	X				
Improve Customer Relationships	X				
Leverage Public/Private Partners	X	X			X
Accurately ID/Allocate Cost		X			X
Control/Improve Processes		X	X		X
Maintain Facility/Support System Health and Readiness			X		X
Plan Program and Execute Integrated Investment Efforts			X	X	X
Environmental Compliance	X		X		
Safety Standards	X		X		
Quality Base Services	X				
Match Skills to Requirements	X				
Motivated Workforce	X				

**Figure 3. Goals, Objectives and Action Plans**

The individual objectives are presented below. The principal Center functional owners are shown in parenthesis.

## **OBJECTIVE 1: DELIVER CUSTOMER EXPECTATIONS (AEDC/DO)**

To sustain the AEDC national defense mission and support of the warfighter, it is absolutely imperative that AEDC deliver quality service, meeting customers' technical objectives while satisfying their cost and schedule requirements. The Center will follow a disciplined process to understand customer requirements and plan and execute responsive test projects. The performance measure for this objective is incorporated in the Center Instruction governing Customer Satisfaction. Customer satisfaction scores and comments are reviewed and acted upon by the AEDC Corporate Board, and as appropriate, incorporated in the contract Award Fee process.

## **OBJECTIVE 2: IMPROVE CUSTOMER RELATIONSHIPS (AEDC/DO)**

A prominent characteristic of industry leaders is the ability to thoroughly understand their chosen customers' requirements and deliver superior customer service accordingly. AEDC has always been a customer-focused organization. In today's environment, it is imperative to elevate customer relationship management to maintain current customers and attract new customers. An integrated, multilevel customer relationship model and a process to promote reliable follow-up to customer concerns were developed and deployed in the recent past. The Center will continue to use and improve these practices. The performance measures for this objective focus on addressing customer concerns. The specific measures are from the Center Instruction governing customer feedback and the Award Fee Process.

## **OBJECTIVE 3: LEVERAGE PUBLIC AND PRIVATE PARTNERSHIPS (AEDC/DO AND AEDC/XP)**

Great improvements in test and evaluation support to acquisition programs are possible through partnering of the various organizations that traditionally provide independent support to customers. The Center initiated the development of IT&E processes for store certification and turbine engine development in 2003. The improved processes will reduce the time required and overall cost for stores certification and turbine engine development. The measures of success in the near term are adherence to schedule in deploying the new processes. As the quantitative benefits of process improvement are defined, these will become measures of success.

In addition to the T&E process partnering described above, there is a significant opportunity to partner with other regional entities having interests shared with AEDC. These partnerships promote more efficient use of government and private sector resources to meet mission responsibilities. It is essential that AEDC leverage strategic partnerships and alliances with other public and private entities to share technologies and investments, guarantee strong sustained workloads, and develop regional unity for mutual benefit.

An outline of the action plan for this objective is provided below. Success for this objective is measured by schedule adherence and a subjective assessment of progress in accomplishing the action plan. An annual action plan tailored to the opportunities is developed by September of the preceding fiscal year.

- Evaluate existing relationships for strategic value
  - Determine appropriate disposition
- Continue to develop and strengthen evolving relationships such as
  - Valley Corridor Summit, Inc.
  - Tennessee Valley Economic Coalition
  - Trilateral Alliance (AEDC – Department of Energy/Oak Ridge – NASA/MSFC)

- o Various major customer alliances and contracts
- Develop an approach to secure new strategic opportunities, such as
  - o Partnerships with turbine engine manufacturers and DoD programs for technology development and data analysis
  - o Long-term T&E agreements with major customers
  - o Liaison positions with major space and missile customers

#### **OBJECTIVE 4: ACCURATELY IDENTIFY AND ALLOCATE COST (AEDC/FM)**

The Air Force is installing a Chief Financial Officer-compliant Cost Accounting System and other automated systems with related standards-driven policy and practices to make program-funding decisions, and to analyze options. In addition, the 2003 source selection requires the AEDC support contractor to deploy a transparent management information system. The AEDC Work Breakdown Structure (WBS) is asset based, identifying costs of assets and groups of like assets. Within this hierarchy, the operations costs, maintenance costs, and investment costs associated with each facility is identified. Funds are allocated/budgeted and costs collected by activity, within a job structure, identified to each asset. These costs are further segregated by type (e.g.: contractor labor, materials, or government furnished labor/material). The contractor management information system, that feeds Air Force standard systems, will provide the detailed cost/budget data. Maintaining strict content definitions (i.e.: data dictionary) for all cost end objects and activity types will insure accurate cost identification. The Cost Analysis Directorate (AEDC/FMC) will define cost allocation methodology, in the accounting entity. All AEDC projects within the WBS are mapped consistently to the accounting entity, with all cost allocation methodologies and rate development well defined and documented. All decisions to alter the cost allocation structure are documented, and supporting materials held on file in AEDC/FMC. This will continue to expand our understanding of the cost of testing and will enable us to identify and implement improved business practices. Performance Measures for this Objective include Cost Variance from Statement of Capability and Rate Stability. The primary method for measuring variances will be a fully compliant earned value management system.

#### **OBJECTIVE 5: CONTROL AND IMPROVE PROCESSES (AEDC/CCI AND ISO MANAGEMENT REPRESENTATIVE)**

A requirement for the government and Center support contractor to become ISO certified was established in 2003. The government target date for certification is September 03 and the contractor assuming support responsibility in October 03 has up to 15 months to become certified. Inherent in ISO certification, is the use of measures of success pertaining to process performance and compliance. The number and severity (Major/Minor/Observation) of non-conformities are indicators of success for this objective.

#### **OBJECTIVE 6: MAINTAIN FACILITY AND SUPPORT SYSTEM HEALTH AND READINESS (AEDC/MA AND AEDC/SD)**

This objective addresses the availability, reliability, capability and maintainability of AEDC's Base and Test Supporting Assets. The assets include test cells, test plants, utilities, facilities, roads and grounds, and communication and computer systems. The objective also includes improvements in asset

health and readiness to satisfy our customers with reliable equipment and competitive prices. The overall goal is to reduce lost test time, interruptions, and operations and maintenance costs.

Our strategy remains the same as when we started our journey to a better, more proactive maintenance program. First, we desire increased preventive maintenance (PM) effectiveness. This will be accomplished through improving procedures and documentation, making the transition to decreased calendar-based PMs through age exploration, and increasing run-time and condition-based PMs. We will continue to move closer to an asset-focused, reliability-based program with increased analysis and diagnostic capabilities. Secondly, we will focus on increasing the skill levels of our personnel through competency training and cross training between different areas. Thirdly, we will improve our operational safety and effectiveness by reviewing and updating procedures, processes, and the technical documentation used to operate and maintain our assets. We will assure configuration control of our assets and their baseline technical documentation. Finally, we will continue to leverage earlier reengineering efforts by implementing an asset management program. The overall effect of these initiatives will be improved equipment availability, reduced lost test time, increased reliability, and decreased corrective maintenance at the same time that preventive maintenance costs remain constant or increase slightly. We will accomplish these improvements through several initiatives:

- Condition-based maintenance utilizing predictive maintenance (PdM) technologies
- Reliability analysis with improved data from our Computerized Maintenance Management System
- Reliability centered maintenance concepts utilized to identify failure modes and preventive actions to avoid these failures
- PM procedure streamlining to ensure that each procedure is accurate, targeted to specific failure modes, and the periodicity is established through age exploration
- Equipment risk reduction through timely accomplishment of PM procedures
- Test measurement diagnostic equipment (TMDE) program implementation
- Multi-skills training that will qualify our craft employees across multiple areas, enhance their skills, and provide a certified reliability engineer program for our system managers
- Asset management implementation to provide system lifecycle configuration management and data for integration with other initiatives
- Tool control programs that maximize accountability and control and avoid discontinuity of work because of tool unavailability
- Integrated operations and maintenance and investment planning and scheduling to minimize conflicts and maximize utilization of facilities
- Foreign Object Damage (FOD) program implementation to reduce the probability of foreign object damage to test facilities and/or test articles at AEDC
- Configuration Management program implementation to ensure up to date asset configuration.
- Oil/Hydraulic Analysis and Storage program implementation to reduce the probability of contamination to our oil/hydraulic systems
- Additional initiatives that will be sought during each subsequent planning cycle

AEDC's current Infrastructure Condition Index is 52 percent. The AFMC goal is to improve the index to 72 percent by FY09 and 75 percent by FY12. The equipment age and associated reliability and maintenance problems are impacting the ability to satisfy customers' requirements. The historic shortage of current maintenance and repair (M&R) funds as well as growing pressure from lack of critical skills and years of reductions in basic maintainer labor are creating major potential risks. The risks are facility failures impacting test program schedules or facility failures damaging a test article or injuring personnel. There is currently a critical M&R backlog at AEDC. The achievement strategy is to continue proactive design activity to prepare efforts for funding and execution, advocate programming of required funds, and

maintain a baseline and surge capability to implement approved efforts. Table 1 illustrates some examples of the critical M&R at AEDC.

Critical M&R Category	Aeropulsion/Aircraft/Space and Missiles
Test Cell Systems	Control valves, valves, model injection, controls, etc. Baseline technical documentation after years of unincorporated changes Update Preventive Maintenance procedures Center-wide
Plant Systems	Compressors, motors, valves, PWT and VKF plant systems, power panels, fuel systems, heater controls, freeze protection, temperature conditioning, etc.
Control Systems	VFSS controls, controls and annunciation, sensors, gaseous monitoring system, control valves, etc. Baseline technical documentation after years of unincorporated changes Update Preventive Maintenance procedures Center-wide
Utilities	Replace electrical high voltage wiring Replace sections of underground raw water piping Replace electrical power monitoring and control system (SCADA) Baseline technical documentation after years of unincorporated changes Update Preventive Maintenance procedures Center-wide Construct transformer oil processing Center

**Table 1. AEDC Critical M&R Summary**

Performance measures for facility and support maintenance are: meeting planning, programming schedules and successful completion of funded infrastructure shaping projects, and achieving an earned value of 60% or more for all active projects. Test and Support infrastructure performance measures include: work completion rates and work productivity, percent emergency versus planned and scheduled maintenance, interruptions, length of interruption (mean time to repair), mean time between failures, housekeeping audits, tool control audits, laboratory audits and inspections, environmental compliance inspections, overall availability rates, results from configuration audits and job safety analysis and infrastructure condition assessments.

## **OBJECTIVE 7: PLAN, PROGRAM AND EXECUTE INTEGRATED INVESTMENT EFFORTS (AEDC/IV AND AEDC/SD)**

Based on specific business requirements, AEDC has created a facility and capability investment portfolio that supports Air Force, DoD, and other customers. The portfolio contains investments that are funded by AEDC, Air Force military construction, and Air Force and DoD test investment funds. This portfolio is a basis for AEDC's internal resource allocations and the center's inputs into external programming and allocation processes. In addition to internal AEDC, Air Force, and DoD processes, the proposed investments and capabilities may be defended in the DoD/NASA National Aeronautical Test Alliance forum.

### **A. Investments to Support New Generation Weapons**

Various investment programs are planned, programmed, and executed to support the warfighters' high technology developmental needs. Currently funded programs include Propulsion Wind Tunnel

Upgrades, Improve Turbine Engine Structural Integrity, Advanced Instrumentation and Data Control System (AIDACS), Real-Time Display and Analysis, Enhanced Turbine Engine Installation and Productivity, Propulsion Consolidation and Streamlining, VKF Plant Modernization, Tunnel 4T Modernization, Tunnels ABC Modernization. A summary of each of these investment programs is given in Table 2.

<b>Investment Program</b>	<b>Year/\$M</b>	<b>End Product</b>
PWT Upgrades	FY02-04/ \$27.2	Sustains long-term operations of the Propulsion Wind Tunnels 16T and 16S to meet Transonic/Supersonic Test needs. Data acquisition, processing, and control systems will be replaced, integrating tunnel and plant controls and data acquisition functions. Two 35,000 HP induction starting motors will be replaced with two 60,000 HP synchronous motors and a solid-state variable frequency starting system. 16S flow quality (flow angle and Mach number uniformity) will be improved. Building a new dryer to augment current capability will provide additional air-drying capability.
Improve Turbine Engine Structural Integrity	FY02-06/ \$12.6	Provides new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue under simulated operational flight conditions. Increases the fidelity between the testing and operational scenarios to the level required to assure that if high cycle fatigue problems exist in operations they will be detected during testing. In addition to new high-speed data acquisition and processing systems, this project will provide resources to ensure that the test facilities being used for the structural testing of turbine engines remain a high state of readiness.
AIDACS	FY02-07/ \$30.0	Provides advanced capabilities for the altitude simulated test cells through upgrading of on-board sensors and high tech data acquisition techniques, automating and integrating plant and test processes, including communication networks, as well as improving test techniques and controls. Capability to provide all needed data to customers near real-time at their sites. Pressure-sensitive paint, smart sensors, and fly-the-mission capability will be provided.
Real-Time Display And Analysis (RDAS)	FY02-07/ \$18.1	Provides data acquisition and control upgrades to the turbine cells, wind tunnel 4T, and Tunnels A/B/C. The data acquisition and control upgrades provided by RDAS are needed before AIDACS can provide full facility integration.
Enhanced Turbine Engine Installation and Productivity	FY02-06/ \$10.4	Enhances throughput and productivity in test cells SL2 & 3. Addresses the thrust stand, building crane, exhaust ducting, engine service systems, inlet air systems, and environmental systems. (JSF, F-22, and others)
DECADE Radiation Test Facility-Enhanced (DRTF-E)	FY02-08/ \$75M	Enhanced DECADE facility to provide full spectrum Nuclear Weapons Effects (NWE) testing. Provides additional Quad for Soft or Hard X-Ray production, as well as multiple prompt and debris sources to enhance the fidelity of the Nuclear Weapon simulation capabilities. (GMD, Trident, Peacekeeper, Aegis BMD, and others)
Propulsion Consolidation and Streamlining (PC&S)	FY04-07/ \$38.7	Reengineers the overall turbine test infrastructure to reduce cost via cycle time reductions, reduce infrastructure, increase automation, and streamline and consolidate test control and processes. Reliance on one plant and increased throughput for a reduced number of test cells requires improved subsystem reliabilities and efficient systems. (JSF, F-22 and others)
VKF Plant Modernization	FY07-10/ \$15.5	Provides a reliable, fully automated plant that will support requirements for high-pressure air storage and delivery. This project will modernize controls, sensors, monitoring, communication, and plant data archiving to provide fully automated control and monitoring capability from a central location for the entire main plant and auxiliary plant. This project will also modernize compressor plant maintenance capability and starting motors will be replaced with more energy efficient variable frequency starting systems. (F-22 and F18 Derivatives, JSF, Hypervelocity Munitions, Theater Missile Defense, JDAM, JSOW, JASSM, NMD, AIM-9X, AMRAAM)

Tunnel 4T Modernization	FY08-12/ \$23.5	Upgrades 4T test article control, data, and instrumentation systems in order to provide technologically acceptable operation, measurement and simulation capabilities. Specific goals are: 1) implement non-intrusive flow measurement techniques, accurate drag measurement capability, and utilize fiber optic sensors and microelectromechanical sensors (MEMS), 2) integrate on-board data systems, upgrade high angle-of-attack, weapons bay acoustic/store separation, and pressure sensitive paint (PSP) and 3) modernize and automate process air controls and test section controls. (JDAM, JSF, UCAV, F-22, F-18, Advanced Weapons Munitions, AMRAAM, AIM-9X)
Tunnels ABC Modernization	FY08-11/ \$18.5	Modernizes VKF supersonic/hypersonic wind tunnels A/B/C to provide technologically superior operation, measurement, and simulation capabilities by incorporating the current generation of aircraft test support technology. Specific goals are: 1) develop non-intrusive flow measurement techniques, develop plasma aerodynamic capability, and utilize fiber optic sensors and microelectromechanical sensors (MEMS), 2) integrate on-board data systems, weapons bay acoustic/store separation, and pressure sensitive paint (PSP), 3) modernize and automate process air controls and test section controls, and 4) construct an advanced facility control room for efficient and rapid test execution. (Navy Standard Missile, JDAM, JSOW, JASSM, Hypervelocity Munitions, TMD, NMD, AIM-9X, AMRRAM, Long Range Strike, SMV)

**Table 2. Investment Programs to Add New Capabilities Continued**

There are various other investment programs proposed that will provide the new and enhanced capabilities needed to meet test requirements in FY08 and beyond. The AEDC Corporate Board validates the requirements for these capabilities and funding sought through the appropriate means. They include Space Situational Awareness Testbed, National Aeropropulsion Systems Test Capability – Plant Rightsizing, 16T High Reynolds Number Enhancement, Advanced Turbine Engine Augmenter Test Capability, Large Wind Tunnel Mach 6 Capability, New Sea Level and Ram Test Capability, National Aeropropulsion Systems Test Capability – Mach 3.8 Capability, Mach 4 to 7 Continuous-Flow True-Air Test Capability, KEW Lethality Test Capability, High Pressure Arc Facility, J4 Efficiency and Duration Capability Upgrade, Advanced Combustor Turbine Eng Test Capability, AEDC Asset Surveillance, Common Interoperable Tools for M&S Development and Validation, Wind Tunnel Virtual Flight Testing Capability, Hypersonic Standoff Weapons Test Capability.

The measure of success for this class of investments is earned value performance of funded efforts.

## **B. Investments to Reduce Operational Costs**

One of AEDC’s main interests is to reduce the cost of testing for its customers and stakeholders. Process improvement (use of six-sigma principles), cross training (multidisciplinary) of work force, and automation and integration of facilities are primary cost reduction strategies. This section deals with the facility investment component of the overall AEDC cost reduction strategy.

The vision for the continuous flow test units is to tightly integrate test, plant, and utility operations such that these three distinct operational elements function as a single cohesive system. To achieve this tightly integrated system, the plan is to automate and consolidate many functions that now are manually controlled. Through consolidation and automation, AEDC will eliminate several satellite equipment rooms for each of its plants and utilities. For consolidated plant operations, the vision is to establish one single space where control and monitoring of all AEDC plants occur. Integration-type investments include PWT Sustainment Program, Propulsion Consolidation and Streamlining (PC&S), AIDACS, and Real-time Display & Analysis System (RDAS) plus various, smaller, I&M and M&R projects as needed to meet the vision.

Propulsion Consolidation and Streamlining (PC&S)	FY04-07/ \$38.7	Reengineers the overall turbine test infrastructure to reduce cost via cycle time reductions, reduce infrastructure, increase automation, and streamline and consolidate test control and processes. Reliance on one plant and increased throughput for a reduced number of test cells requires improved subsystem reliabilities and efficient systems. (JSF, F-22 and others)
AIDACS	FY02-07/ \$30.0	Provides advanced capabilities for the altitude simulated test cells through upgrading of on-board sensors and high tech data acquisition techniques, automating and integrating plant and test processes, including communication networks, as well as improving test techniques and controls. Capability to provide all needed data to customers near real-time at their sites. Pressure-sensitive paint, smart sensors, and fly-the-mission capability will be provided.
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**Table 3. Investment Projects on Test Cost Reduction**

### C. Information Technology Investments

In addition to the test and support infrastructure, information management assets require investment to achieve AFMC Information Management objectives. The following initiatives are central to AEDC's information management investment effort:

- Engineering and Installation
- Network Services Plan
- Corporate Architecture and Performance Standards
- Combat Information Transport System/Network Management System/Base Information Protection
- Land Mobile Radio Narrow Band Frequency Migration
- Server consolidation
- AF Portal
- Enterprise Systems Management
- WIN2K/Active Directory Life Cycle of Information
- Software Solution Plus LISS+
- Network Operations and Security Center
- Centralized network control center

High-level milestones for accomplishment of the AFMC spirals that align bases are shown below:

- Implement convergence of voice, video, and data at all bases 30 Aug 06
- Implement convergence of classified systems 30 Aug 07
- Implement convergence of unclassified voice, video, and data across the DISN 30 Aug 09

- Complete Air Force Portal Project 30 Jun 05
- Complete Base Telephone CAPS Project 30 Sep 07

The measure of success for this objective will be earned value performance of funded efforts.

## **OBJECTIVE 8: MAINTAIN ENVIRONMENTAL COMPLIANCE (AEDC/SDE)**

AEDC has an environmental management program to ensure proposed actions, projects, and ongoing base and test operations are properly reviewed by the Environmental Management Division. This review ensures that all appropriate environmental impact analyses, historic property consultations, and environmental permits are obtained and implemented without impacting test capabilities and established schedules. In addition, this review ensures all permit conditions required for operations are maintained and that the Air Force (AF) is in compliance with Federal, State, and Local Environmental Laws and Regulations

The Environmental Impact Analysis Process (EIAP) ensures that proposed actions and projects are evaluated for impacts to the environment and that key decision makers are aware of them prior to finalizing their decisions.

The historic property consultations ensure properties that are historically significant are identified and preserved for future generations. The process involves coordination with the Tennessee State Historic Preservation Officer and other consulting parties to complete the appropriate consultation and preservation activities.

The function of acquiring and implementing environmental permits encompasses four program areas within the Environmental Management Division. The primary area is through the Environmental Quality Program where compliance with current environmental laws and regulations are managed. The Environmental Quality Program ensures all required permits are acquired and implemented for current and future operations. The Pollution Prevention Program works in conjunction with the Environmental Quality function to reduce the use of hazardous materials and promote the use of non-hazardous alternatives. The Installation Restoration Program seeks to restore sites on Arnold Air Force Base where hazardous substances have been released into the environment. This is accomplished through the Corrective Action Process, as documented in a Facility Action Plan in coordination with the Tennessee Department of Environment and Conservation. The final area is the Natural and Cultural Resources Program. This program ensures the proper stewardship of approximately 40,000 acres of land while still ensuring the availability of those resources to support mission activities and future operations.

The Metrics for measuring the success of these functions are the following:

- EIAP review by AEDC/SDE shall be completed on time as negotiated with our customers.
- Cultural Resources consultation shall be completed no later than the date negotiated with the customer.
- Environmental Compliance with permits and regulations shall be evaluated quarterly and annually through the Environmental Compliance Assessment and Management Program. A management action plan is prepared to track and close all non-compliance issues.

## **OBJECTIVE 9: MAINTAIN SAFETY STANDARDS (AEDC/SE)**

We will posture AEDC for future opportunities through sustained safety compliance. We will achieve this by promoting continuous process improvement and integrating safety considerations as a part of AEDC's decision-making process.

Milestones for safety will include annual compliance with regulations and reduction of the safety incident rate and lost workday rate. This rate will be five percent each six months as measured against the average rates for the first five periods of the operating contracts.

Throughout the period of this Strategic Plan, the objective will be considered accomplished if safety key performance measures have been attained. The safety key performance measures to be used to assess progress from the baseline are safety incident rate, lost workday rate, and System Safety Hazard Analysis (SSHA) audit compliance. The baseline for performance measurement will be the FY03 safety incident rate and lost workday rate.

## **OBJECTIVE 10: PROVIDE QUALITY BASE SUPPORT SERVICES (AEDC/SD)**

This objective encompasses a host of base wide services including medical, comm/computer, supply, transportation, and base security and law enforcement activities of all personnel on or passing through the 40,000-acre Base as well as the 600-acre industrial complex designed to safeguard DoD and commercial aircraft and rocket test hardware and data. Security requirements for the \$7.1B infrastructure assets include fire protection and disaster preparedness. In addition, military family housing support and morale and quality of life services are included.

The support contractor at AEDC provides all of the above functions. Performance expectations and metrics to assess status are reviewed quarterly and assessed formally in the biannual award fee determination.

## **OBJECTIVE 11: MATCH SKILLS TO REQUIREMENTS (AEDC/DP AND AEDC/XPM)**

The government has reviewed its requirements by AFMC Mission Area and developed a list of needs to be met by AEDC's Accession Plan. At the same time, AFMC has pursued the Scientist and Engineer Requirements and Resources Review. Personnel and manpower processes, as well as other processes governed by the ISO-certified quality management system, including performance measures, will enforce:

- Identification of key government roles and responsibilities performed by AEDC organizational elements
- Understanding of the tasks performed to accomplish the key government roles and responsibilities, and the percentage of employee time spent performing these tasks
- Validation of position descriptions and employee assignments
- Identification of training shortfalls and employee development needs
- Assignment and divestiture of workload
- Identification of functions and processes that consume high levels of work force resources and are candidates for review and improvement efforts

AEDC's support contractors are responsible for meeting government requirements by providing the appropriate number of personnel with the required skills. The government's primary means of assessing the contractor's success in meeting this objective is to evaluate performance and cost against requirements.

## **OBJECTIVE 12: MAINTAIN A MOTIVATED AND PROFESSIONAL WORK FORCE (AEDC/DP)**

The AEDC Accession Plan emphasizes “preserving and growing government work force leadership and management capability”. To accomplish this for government employees, AEDC will:

- Establish a practice of internal personnel rotations to broaden work force experience.
- Emphasize DoD wide recruitment when vacancies arise to promote hiring of best-qualified personnel.
- Emphasize technical training and development for Scientists and Engineers in the government work force.
- Develop and implement a strategy to improve employee motivation using results from the Chief of Staff of the Air Force (CSAF) Organizational Climate Survey results and monitoring implementation of recommendations.
- Implement an improved expectations-setting and feedback process for government employees.
- Ensure that all personnel, government and contractor, understand AEDC’s business model, and that they have the interpersonal, teamwork, and leadership skills to work effectively.

## ACRONYMS

AIM-9X – Air Interceptor Missile  
AMRAAM – Advance Medium Range Air-to-Air Missile  
AMSC – Advanced Missile Signatures Center  
CAPS – Computer Aided Preventive Maintenance System  
CTEIP – Central Test and Evaluation Investment Program  
CTS – Captive Trajectory System  
DISN – Defense Information Systems Network  
F119 – Engine that powers F-22  
F18 – U.S. Navy Fighter  
F/A-22 – Raptor Air Dominance Fighter  
HR – Human Resources  
I&M – Improvement and Modernization  
IT&E – Integrated Test and Evaluation  
JASSM – Joint Air to Surface Standoff Munitions  
JDAM – Joint Direct Attack Munitions  
JI – Jet Interaction  
JSOW – Joint Standoff Weapon  
KEW – Kinetic Energy Weapon  
M&S – Modeling and Simulation  
NMD – National Missile Defense  
P-PLANT – PWT Plant Local Area Network  
PWT – Propulsion Wind Tunnel Facility  
RCRA – Resource Conservation and Recovery Act  
SCADA – Supervisory Control and Data Acquisition  
SMV – Space Maneuvering Vehicle  
TEMA – Test and Evaluation Mission Area  
TIPP – Test Investment Planning Process  
TUPM – Test Utility Process Modernization  
TVEC – Tennessee Valley Economic Coalition  
UCAV – Unmanned Combat Aerial Vehicle  
VFSS – Variable Frequency Starting System (C-Plant)  
VKF – Von Karman Facility  
WIN2K – Windows 2000

AEDC Objectives	Facilities Infrastructure Management Objectives	Eliminate FSM Ratings of C-3, C-4	ICI of 75% by 2012
Deliver Customer Expectations			
Improve Customer Relationships			
Leverage Public/Private Partners			
Accurately ID/Allocate Cost			
Control/Improve Processes			
Maintain Facility/Support System Health and Readiness		X	X
Plan Program and Execute Integrated Investment Efforts		X	X
Environmental Compliance			
Safety Standards			
Quality Base Services			
Match Skills to Requirements			
Motivated Workforce			

## APPENDIX 1

<b>AFMC AEDC Obj.</b>	<b>Prod/Svc Promised</b>	<b>AEF Readiness</b>	<b>Future Workforce</b>	<b>Anticipate Warfighter Needs</b>	<b>Shape Infras.</b>	<b>Tech &amp; Material Optim</b>	<b>Divest Reinvest</b>	<b>Horiz Int. Partnerships</b>	<b>Transform Processes</b>	<b>Influence Doctrine</b>
Del Cust Expectation	X					X				
Imp Cust Relationships	X			X		X				
Leverage Partnerships	X			X		X		X	X	
Accurate ID/Control Cost	X									
Control/Imp Process	X			X		X			X	
Asset Health	X				X					
Integrated Investment				X	X	X	X			
Environmental Compliance	X									
Safety										
Quality Base Support										
Skills			X							
Motivated Workforce			X							

AEDC Objectives \ TEMA Priorities	Impr. Test Cycle Time	Customer Focused Support	Improve Business	Reinvent T&E	Environ. For T&E Professionals
Deliver Customer Expectations	X	X			
Improve Customer Relationships		X			
Leverage Public/Private Partners	X	X			
Accurately ID/Allocate Cost		X	X		
Control/Improve Processes			X		X
Maintain Facility/Support System Health and Readiness	X	X		X	
Plan Program and Execute Integrated Investment Efforts	X	X		X	
Environmental Compliance		X			
Safety Standards		X			
Quality Base Services		X			
Match Skills to Requirements					X
Motivated Workforce					X

AEDC Objectives \ Procurement Objectives	Customer Satisfaction	Effective Quality Controls	Effective Use of Alternate Procurement Processes	Fulfill Public Policy Objectives	Improve Extent of Reliable Management Information	Quality Workforce & Work Environment	Minimize Administrative Costs to Acquire Goods and Services	Maximize Cost Avoidance
Deliver Customer Expectations								
Improve Customer Relationships								
Leverage Public/Private Partners								
Accurately ID/Allocate Cost								
Control/Improve Processes							X	X
Maintain Facility/Support System Health and Readiness								
Plan Program and Execute Integrated Investment Efforts								
Environmental Compliance								
Safety Standards								
Quality Base Services								
Match Skills to Requirements						X		
Motivated Workforce						X		

AEDC Objectives \ MSMA Objectives	Improve Facility Condition	Improve IT Condition	FY10 IRR of C-2	NOSC Infrastructure Readiness	Reduce Excess Facilities	Improve Contingency Response Training	Deployable Personnel Readiness	Reduce Unit Costs	Develop Post-Strategic Sourcing Strategy	Standardize Service Contracts
Deliver Customer Expectations										
Improve Customer Relationships										
Leverage Public/Private Partners										
Accurately ID/Allocate Cost								X		
Control/Improve Processes								X		
Maintain Facility/Support System Health and Readiness	X	X						X		
Plan Program and Execute Integrated Investment Efforts	X	X		X	X			X		
Environmental Compliance										
Safety Standards										
Quality Base Services										
Match Skills to Requirements						X	X			
Motivated Workforce										

Financial Management Objectives AEDC Objectives	AEF Personnel and Contingency Support	Foster and Build Partnership	Attract, Train, Motivate and Retain Financial Professionals	Re-engineer, Standardize, and Automate Financial Processes Across AFMC	Improve Decision Making	Exploit ABC/M Development and Implementation	Promote Cost Conscious Behavior
Deliver Customer Expectations							
Improve Customer Relationships							
Leverage Public/Private Partners							
Accurately ID/Allocate Cost					X	X	X
Control/Improve Processes				X	X		
Maintain Facility/Support System Health and Readiness							
Plan Program and Execute Integrated Investment Efforts					X		
Environmental Compliance							
Safety Standards							
Quality Base Services							
Match Skills to Requirements	X		X				X
Motivated Workforce			X				