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A River of Energy Solutions

ENERGY SECURITY AS A CRITICAL DOD ENERGY GOAL

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SECURITY AND OTHER ENERGY GOALS SERVED BY DOD ENERGY PROGRAMS

ENERGY GOALS ACROSS			SAVE	SAVE	SECURITY	LESS	INCREASE	REDUCE	IMPROVE
<u>ENERGY PROGRAMS DOWN</u>			<u>ENERGY</u>	<u>DOLLARS</u>	<u>OF SUPPLY</u>	<u>FOREIGN</u>	<u>RENEW-ABLES</u>	<u>GASES</u>	<u>EFFIC- IENCY</u>
ENERGY CONSERVATION INVESTMENT			YES	YES	YES	NO	YES	YES	YES
ENERGY SAVINGS PERFORMANCE CONTACTS			YES	* YES	NO	NO	SOME	YES	YES
UTILITY ENERGY SAVINGS CONTRACTS			YES	* YES	NO	NO	SOME	YES	YES
UTILITY PRIVATIZATION			NO	YES	YES	NO	NO	NO	YES
UTILITY METERING			YES	YES	NO	NO	NO	YES	YES
ENERGY AND WATER AUDITS			YES	YES	NO	NO	NO	YES	YES
SUSTAINABLE DESIGN			YES	NO	NO	NO	NO	YES	YES
SYNTHETIC FUELS			NO	NO	YES	YES	NO	NO	NO
ENERGY STAR PRODUCTS			YES	NO	NO	NO	NO	YES	YES

DOD ENERGY PROGRAMS SERVING ENERGY SECURITY AND OTHER GOALS

ENERGY CONSERVATION INVESTMENT PROGRAM	ECIP is a direct DoD investment program for energy and water conservation.
ENERGY SAVINGS PERFORMANCE CONTACTS	ESPCs are DoD partnerships with an energy company which identify improvements, financing, construction and guarantees net savings.
UTILITY ENERGY SAVINGS CONTRACTS	UESC is similar to ESPC, except the contract involves a utility service provider.
UTILITY PRIVATIZATION	UP transfers systems from government-operators to utility services to obtain safe technologically and environmentally sound utility systems at lower costs.
UTILITY METERING	UM involves installing building level meters on appropriate facilities.
ENERGY AND WATER AUDITS	EW&A conducts audits of facilities to determine potential energy conservation measures and renewable energy that may be implemented.
SUSTAINABLE DESIGN	Sustainability requires integrated designs for building and infrastructure life cycles.
SYNTHETIC FUELS	Synfuel is a liquid fuel obtained from coal, natural gas, or biomass. The Fischer-Tropsch process transforms gas from coal (and other substances) into liquid gas.
ENERGY STAR PRODUCTS	ENERGY STAR is a joint DOE/EPA program to protect the environment and save resources through energy efficient products and practices.

CRITERIA FOR RATING DOD ENERGY SECURITY AND OTHER GOALS

SAVE ENERGY	PROGRAM REDUCES SOME FORM OF ENERGY USE									
SAVE DOLLARS	SAVINGS ARE SUPPORTED BY SOME COST-EFFECTIVE ANALYSIS									
SECURE SUPPLY	THE SECURITY OF A SUPPLY OF ENERGY IS SIGNIFICANTLY ENHANCED BY THIS PROGRAM									
LESS FOREIGN	MEASURABLY LESS DEPENDENCE ON FOREIGN SOURCES OF ENERGY									
INCREASE RENEWABLES	A SIGNIFICANT PORTION OF THE ENERGY USE NOW COMES FROM RENEWABLE SOURCES									
REDUCE GASES	USE OF NON-CARBON SOURCES YIELDS YES; ENERGY EFFICIENCY REDUCTIONS YIELDS SOME									
IMPROVE EFFICIENCY	THE USE OF ENERGY IS DONE IN A MORE EFFICIENT MANNER									

Why Facilities' Energy Matters for Energy Security

- Significant Cost
 - FY09: \$4.0 billion (26% of total DoD energy costs)
 - Cost likely to increase (reduced presence in Iraq and Afghanistan, improved Quality of Life (QoL))
- Mission Assurance/Energy Security ¹
 - DoD's reliance on a fragile commercial electricity grid places continuity of critical missions at serious and growing risk ²
- ¹ Energy security means "assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs."
(Quadrennial Defense Review 2010)
- ² Defense Science Board, "More Fight – Less Fuel," February 2008

“Unnecessarily high and growing battlespace fuel demand that: compromises operational capability and mission success; requires an excessive support force structure at the expense of operational forces; creates more risk for support operations than necessary; and increases life-cycle operations and support costs.”

Installation Energy Security Strategy

- *Increase Supply of renewable/alternative energy*
- – Large military installations well suited to support solar, wind and geothermal, but T&E species a challenge
- – Potential for rooftop renewable on large scale
- – Private financing essential
- – Contributes to energy security

Energy Security Initiatives

- Energy Security & Microgrid Initiatives
 - Energy Surety Microgrids
 - Smart Power Infrastructure Demonstration for Energy Reliability and Security (SPIDERS)
 - Norfolk Case Study
 - Other Service related initiatives
- Industry Perspectives
 - Electric grid is resilient to natural disasters and human error
 - Issues arise with simple operator errors (e.g., snow storms)
 - Concerned with “dynamic” and unknown actors – terrorist threats to physical grid attributes (e.g., substations) and cyber attacks