



• August 15-18, 2010 • Dallas, Texas •
• Dallas Convention Center •



Energy 101 – Putting it into Action!



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Energy Engineering Analysis Program,
the Army's Energy Auditing Tool

Energy Engineering Analysis Program (EEAP)

Objectives



Achieve energy goals by:

- *identifying energy conservation projects*
- *assisting with capital investment strategy development to ensure execution of energy conservation measures (ECMs)*

to eliminate energy waste at Federal facilities

The EEAP Process



1. Prioritize Installations for Survey
2. Pre-Survey Visit
Gather data / Assess expertise needed for survey
3. Survey
4. Report Delivery / Capital Investment Strategy



...it doesn't stop here

EEAP Products



1. Energy Assessment - Enhances installation awareness of energy and water related issues. Finds conservation measures.



2. Report – Documents installation energy and water status; identifies conservation opportunities.



3. Capital Investment Strategy – Provides a framework for making decisions on development and implementation of projects. Helps in analysis of priorities.



4. DD1391s – Prepared for submission for ECIP funding.



...it doesn't stop here

Development of Energy Strategy

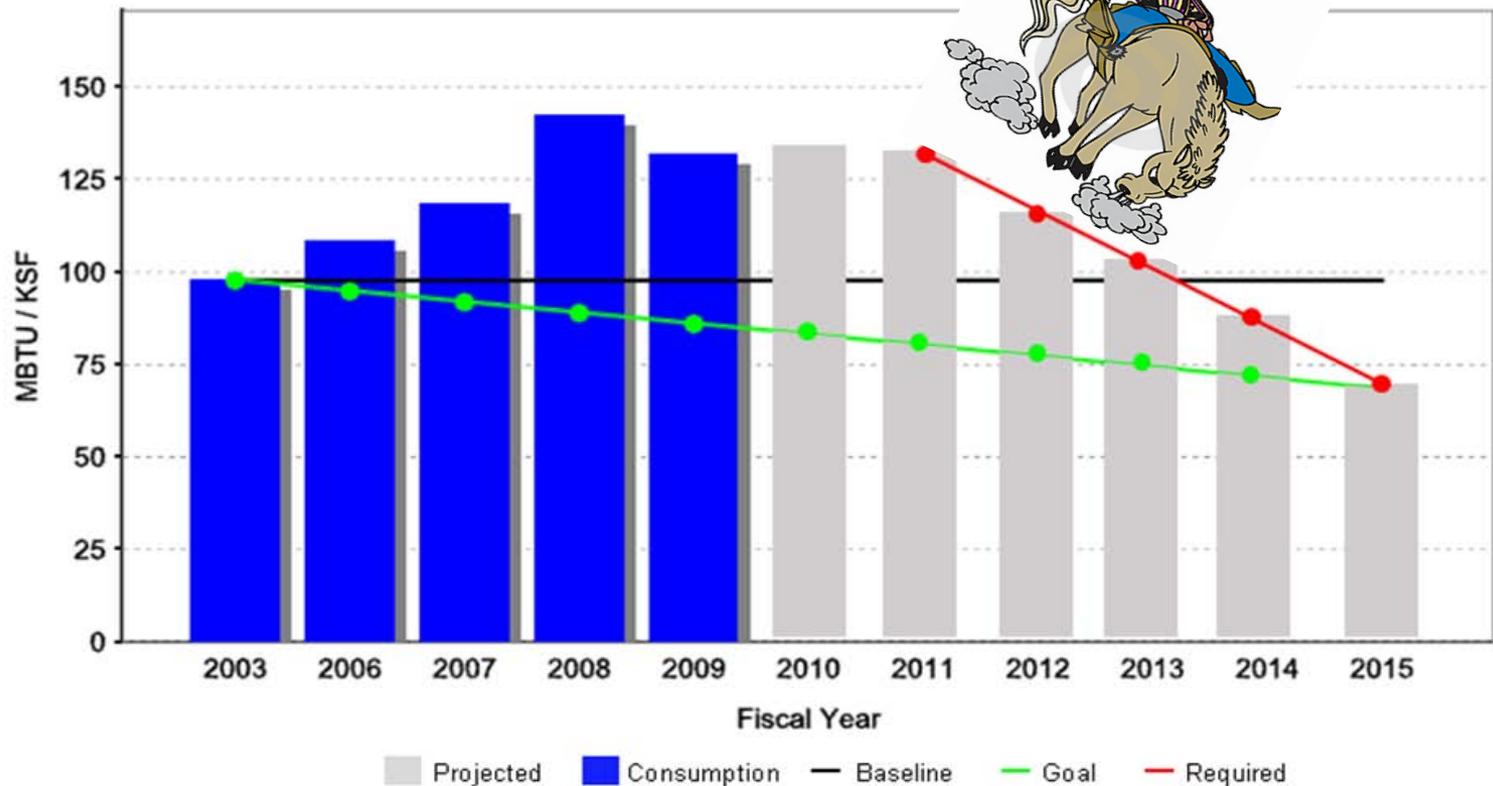
Determining path forward

- Define Current Status
- Define Opportunities
- Develop Implementable Goals
- Research Funding
- Develop ECIP 1391s
- Prepare 4283s
- Project Prioritization System

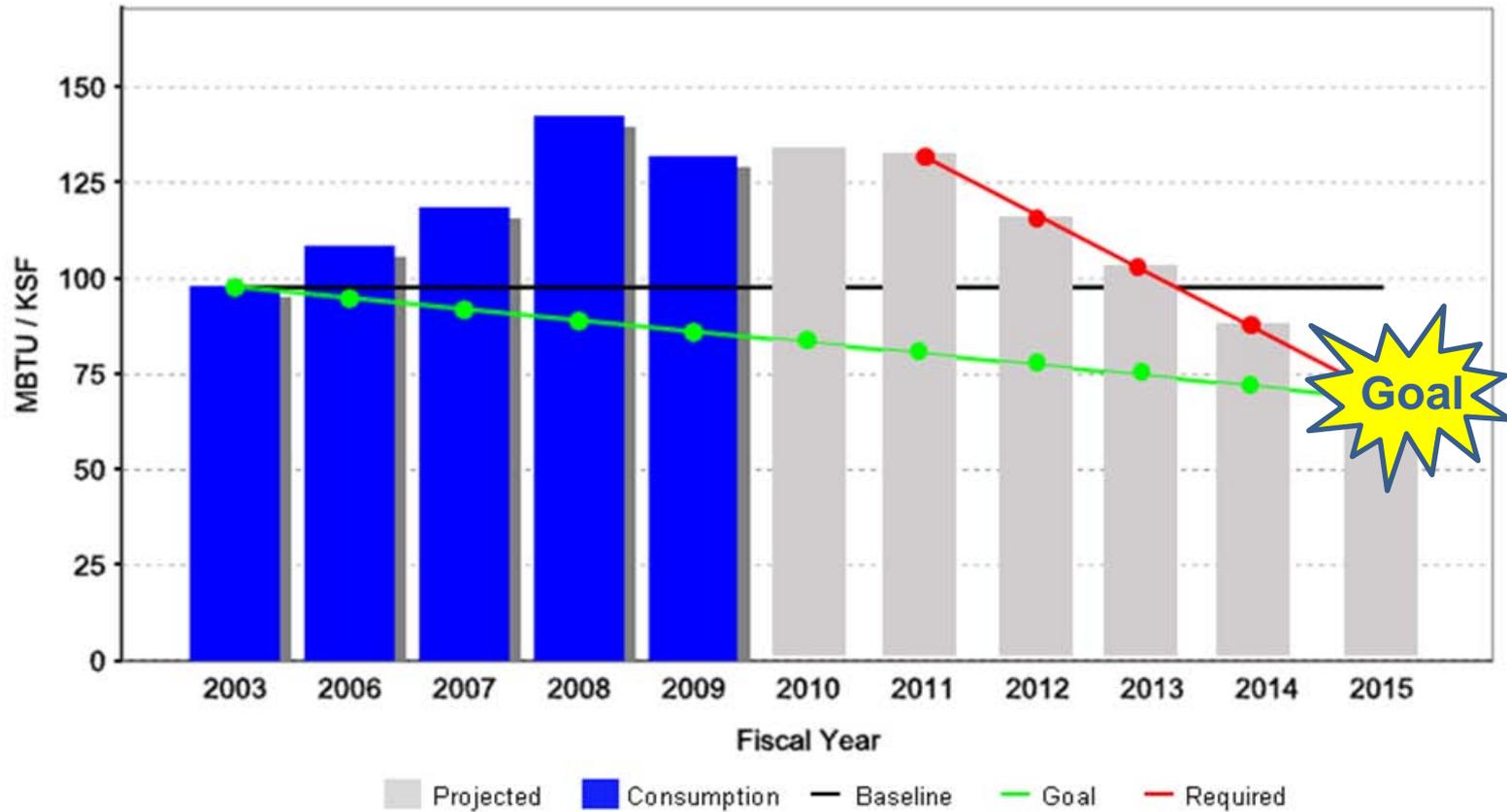
Incorporate into Comprehensive Energy and Water Management / Master Plan



What does your energy consumption look like?



Where do you want to be by 2015? 2030? 2050?



**Army Energy and Water Campaign Plan for Installations
EPACT 05; EO 13423; EO 13514; and EISA 07**

GovEnergy 2010

Plan for a Downward Trend



Fiscal Year	Required Savings (%)	Required Savings (MMBtu)	Anticipated Savings (MMBtu)	Investment Required (\$ M)	Estimated Energy Consumption (MMBtu)	MMBtu/KSF
FY11	NA	-	-	\$938,757	288,600	130
FY12	11.8%	34,084	22,415	\$1,451,447	266,185	120
FY13	11.8%	34,084	19,171	\$1,894,623	247,014	111
FY14	11.8%	34,084	20,807	\$923,406	226,208	102
FY15	11.8%	34,084	28,434	\$0	197,774	89
Totals:	47.2%	136,336	90,826	\$5,208,231	1,514,381	-

Capital Investment Planning

- Funding:
 - Operation and Maintenance Funds
 - Energy Conservation and Investment Program (ECIP)
 - Military Construction (MILCON)
 - Third Party Financing
- Savings-to-Investment Ratio
- Execution/Implementation
- Partnership



Funding



- What can you afford?
 - Operation and Maintenance (SRM)
- Other funding resources?
 - ECIP (Renewable 65%/Non-Renewable 35%)
 - Military Construction, Army (MCA)
 - Third Party Financing - Energy Savings Performance Contract (ESPC), Enhanced Use Lease (EUL), PPA (Power Purchase Agreement), demonstration projects

Savings-to-Investment Ratio

- Prioritize projects according to funding source and SIR
 - Your money – What yields the highest SIR now
 - ECIP (funding typically over \$750K)
 - Renewables 65%: Greater than <1 SIR
 - Non-Renewables 35%: Greater than <1.25 SIR
 - MCA (funding over \$750K)
 - ESPC (typically requires more analysis/studies and has a low or unknown SIR)

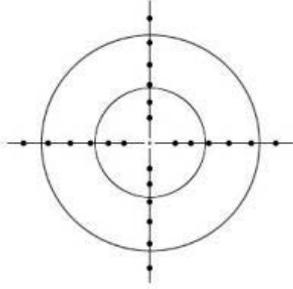


Implementation



- **Create a Capital Investment Strategy**

Category	FY11	FY12		FY13		FY14		FY15		Total	
	Investment	Savings	Investment	Savings	Investment	Savings	Investment	Savings	Investment	Savings	Investment
Building Envelope	\$672,922	14,429	\$484,107	7,529	\$484,107	7,529	\$541,507	7,815	\$0	37,302	\$2,182,644
Domestic Water Heating	\$11,161	1,643	\$0	0	\$255,591	3,191	0	0	\$0	4,834	\$266,752
HVAC	\$26,480	1,997	\$835,884	9,885	\$1,023,469	8,331	\$250,443	18,862	\$0	39,075	\$2,136,276
Lighting	\$106,663	2,401	\$0	0	\$0	0			\$0	2,401	\$106,663
Renewable Tech.	\$13,000	189	\$0	0	\$0	0			\$0	189	\$13,000
Replace Upon Failure	\$131,455	1,756	\$131,455	1,756	\$131,455	1,756	\$131,455	1,756	\$0	7,026	\$525,821
Totals:	\$961,682	22,415	\$1,451,447	19,171	\$1,894,623	20,807	\$923,406	28,434	\$0	90,826	\$5,231,156



Implementation Target Your Energy Opportunities

Category	FY11	FY12		FY13		FY14		FY15		Total	
	Investment	Savings	Investment	Savings	Investment	Savings	Investment	Savings	Investment	Savings	Investment
Building Envelope	\$672,922	14,429	\$484,107	7,529	\$484,107	7,529	\$541,507	7,815	\$0	37,302	\$2,182,644
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Implementation

- **Capital Investment Strategy should reflect the installation's priorities**

Bldg Name	Description	Total Energy Savings		Total Savings (\$)	Invest. (\$)	Est. SIR	Implementation Strategy
		MMBtu/Yr	\$/Yr				
Bldgs 4981, 4982, 4499	Install Variable Frequency Drives for Systems that Incorporate Variable Volume Flow	260	\$5,329	\$5,329	\$18,750	3.3	SRM
Administration	Replace Inefficient Temporary Equipment	127	\$2,596	\$2,596	\$13,500	2.2	SRM
DFAC	High Efficient Electronically Communicated Motors on Evaporator Coils in Walk-in Coolers	24	\$502	\$502	\$2,000	2.9	SRM
Warehouse	Reduce Number of Doors	5,152	\$46,368	\$46,368	\$174,368	4.4	ECIP Bundle
Chiller Plant	VFD for Chilled Water Distribution Pumps	577	\$11,844	\$11,844	\$36,000	7.0	ECIP Bundle
Chiller Plant	Chiller Isolation Valves and Load Based Operation	459	\$9,408	\$9,408	\$38,100	5.3	ECIP Bundle
Bldgs 5300, thru 5305	Implement Automatic Adjustment of Heating/Cooling Supply Water Temperature Set-point	1,089	\$14,986	\$14,986	\$27,750	6.2	ECIP Bundle

Implementation

- **Capital Investment Strategy by FY should target priority facilities and projects that optimize energy and water consumption reduction**



Barracks



Central Energy Plants



Dining Facilities



Admin Buildings

Tools

- IMCOM Project Prioritization System (PPS)
- Programming Administration and Execution System (PAX) DD Form 1391 Module for ECIP and MCA projects
- Engineering Knowledge Online – HNC Energy Portal

Websites:

<http://pps.hqda.pentagon.mil>

<https://pax.mech.disa.mil>

https://eko.usace.army.mil/virtualteams/hnc_energy/

Implementation

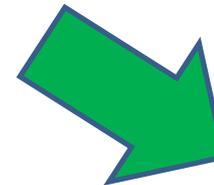
Implementing Findings...



Incorporation of Implementation Plan / Capital
Investment Strategy into the

...Facilities Master Plan

To ensure that the Plan-Do-Check-Act cycle is completed on a regular or as-needed basis and that the energy usage is going in the right direction ...



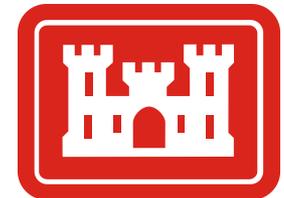
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Partnership



EEAP Partners include:

- IMCOM Program Sponsor
- Leverages Expertise and Capabilities
- Creates working relationship with Garrison Commanders, DPWs, Energy Managers, and Resource Efficiency Managers



Questions

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