



DIRECTORATE OF PUBLIC WORKS



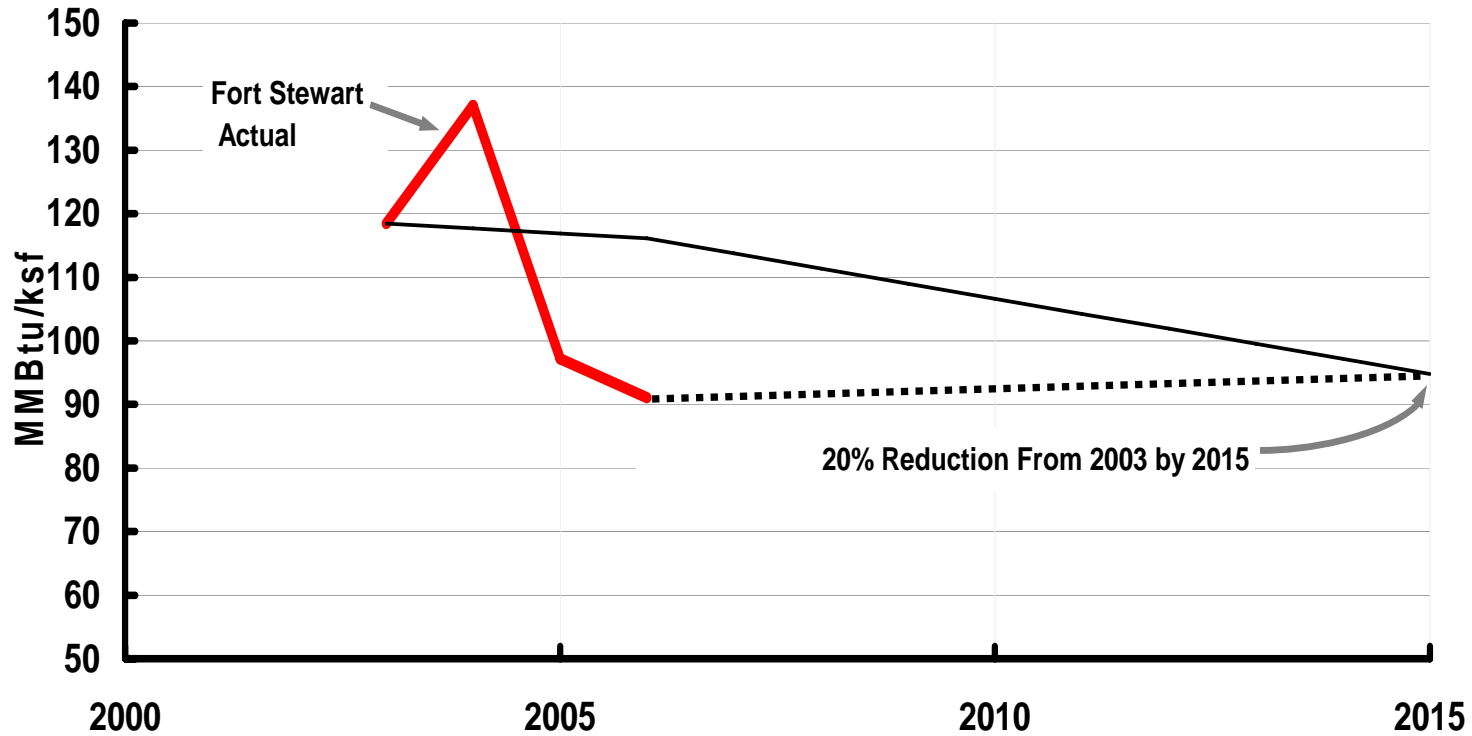
Fort Stewart/ Hunter Army Airfield Energy Program



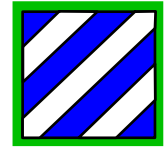
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Fort Stewart Glide Path

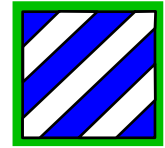


Fort Stewart Energy Reduction Glide Path



Energy Costs

UTILITY	Per MMBTU	UNIT
Wood	\$1.8	\$16.76/Ton
Natural Gas	\$8.32	\$8.58/MCF
Fuel Oil - #2	\$8.37	\$1.16/Gallon
Propane	\$12.78	\$1.21/Gallon
Electricity	\$14.77	\$0.05/KWH
Water/Sewer		\$2.02/kGal



Energy Program Solutions - Meters

Requirements:

EPACT 2005

- All buildings to be metered by 2012
- Electrical, Heat, Water
- Metering Plan

Meter Installation

- ESPC
- MCA/MILCOM
- Privatization

Benefits

- Accurate Billing – Cost Avoidance
- Identify Energy Losses
- Better Energy Efficient Project Design



Energy Program Solutions

Energy Management Control System (EMCS)

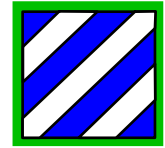
Solution - in Progress

- Established Web-based system - LON and BACnet
- Add additional buildings through future ESPC Delivery Orders/ MCA/ Energy Projects
- Provides Load Shedding, Billing, Degree Day software



Energy Funding

- Appropriated Funds-Limited (AF)
- Energy Conservation Investment Program (ECIP)
 - Requires high payback
 - Requires high saving to investment ratio
 - Compete with other installations
- SMR-Limited budget
- Alternative Financing
 - Utility Energy Savings Contract (UESC) (10-year)
 - Energy Savings Performance Contracting (ESPC) (25-year)



Funding Vehicle: Justification Approach

Example:

A \$470,000 project that saves \$30,000/year. What is the best Vehicle?

Funding Vehicle	Savings/Yr	Allowed Payback (Years)	Max. Project Cost Allowed
UESC	\$30,000	10	\$300,000
ESPC	\$30,000	25	\$750,000
ECIP	\$30,000	4	\$120,000
AF	\$30,000	4	\$120,000
BLENDING	\$30,000	25	\$750,000 plus buy-down finance charges



Energy Projects - Current ESPC Delivery Order 1

- Install EMCS in 32 Buildings
- Retrofit Lighting Systems in over 100 Buildings
- Install Low Flow Showerheads and Flush Valves, and Waterless Urinals
- Install Cooling Tower Water Flow Control
- Repair Domestic Water Leaks
- Recycle Wash Rack Sediment Basin Water
- Reduce Kitchen Water use



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Energy Projects – Future

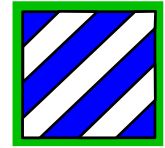
ESPC Delivery Order 3

- Install Electrostatic Precipitator and Dryer on Wood Boiler - FTS
- Install EMCS and Metering in 400 Buildings
- Install Vending Machine Controls
- Upgrade and Retro-commission HVAC Systems in 800 Buildings
- Install Ground Coupled Heat Pumps in 6 Buildings
- Retrofit Lighting Systems & Occupancy Sensors in 813 Buildings
- Repair/Replace Roofs and Building Envelopes
- Install FTS Central Energy Plant Cogeneration (Building 1412)
- Install Cogeneration Plant (Building 1323) at HAAF
- Install Solar Energy System at HAAF
- Implement Water Conservation
- Optimize Boiler and Chiller Plant (Building 1277) at HAAF
- Install Computer Power Management to reduce off-duty Energy Use



Central Energy Plant Modernization Program

- Upgrade High Temperature Water Distribution Piping
- Replace Cooling Towers
- Replace Backup Boilers
- Refurbish Wood Fired Boiler
- Replace Absorption Chillers
- Replace Wood Feed Equipment
- Upgrade Wood Yard



Energy Conservation Investment Program (ECIP) – Current

- Install EMCS in 45 Buildings
- Install Dehumidification Pilot Project – 3 Buildings
- Install Fuel Cell at Waste Water Treatment Plant