



# ARMY ENERGY PROGRAM FORT HOOD, TEXAS

## **Demand Side Energy Reduction Initiatives**

Presented By

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5 February 2005



# Presentation Outline



- **Unmeasured Initiatives - *Sustainability***
  - Installation Design Guide and Corp Specification Changes
  - FM Load Management
  - LON Controls Guidance
  - New Technology Implementation Guidance
  - Unit Training
- **Measured Initiatives - *Performance Contracting***
  - ESPC Delivery Order #1
  - ESPC Delivery Order #1
- **What Matters Most**
  - Education, Collaboration, Leadership Backing



# Unmeasured Initiatives



- **Changes to IDG & Installation Specific Corp Specifications**
  - Lighting Efficiencies and Power Factor Ratings
    - T8/32 watt/ 4100k with 95% PF and electronic Ballasts
  - Packaged Unit Efficiencies
    - 12 SEER Minimum FY 2005, 14 or 15 SEER Minimum FY 2007
  - Boiler and chiller Efficiency Ratings
    - In development
  - Occupancy Sensors Mandatory in Admin Facilities
  - Minimum R-values of 30 for Roofs



# Unmeasured Initiatives



- FM Load Management/Peak Shaving Strategy
- LON Works Controls/Master Planning Strategy
  - CERL Tech Guidance Project for New Building HVAC Lon Compliant Database Turnover Procedures.
  - Reviewing Controls Architecture for Base-wide application
- New Technology Implementation Guidance
  - Follow-on Projects with CERL to determine at what point New technologies will become viable for Fort Hood
- Monthly & Quarterly Unit Training



# WHY CONSERVE ENERGY?



- IT'S SIMPLE
- IT BENEFITS EVERYONE
- REDUCES INCREASING UTILITY COST
- IT'S JUST THE RIGHT THING TO DO





# TOPICS



- ARMY ENERGY PROGRAM
- FORT HOOD ENERGY PROGRAM
  - FACILITIES ENERGY GOAL
  - FORT HOOD PERFORMANCE
  - ENERGY EFFICIENCY IMPROVEMENTS
  - ENERGY REDUCTION STRATEGIES



# Earth Day 18 & 19 April 2003



**Exchange that pair of old tennis shoes  
for a Energy Saving Spiral Bulb.**



**Limit (2) bulbs per household, please!**



# Measured Initiatives



- ESPC - Delivery Order #1
  - VFD's for Cooling Tower Fans
  - Lighting Retrofits
  - Vending Misers
  - Controls
    - Savings calculated on Scheduling Only
    - LON Web based Solution Based



# Measured Initiatives



- **Lighting Retrofit**

- Improved Lighting Levels (Before - 14 FC, After - 34 FC)
- Customer Satisfaction and productivity reports positive
- Low cost ECM with quick Pay back





# Measured Initiatives



- Vending Misers

- 30% to 50% savings realized
- Reduced compressor runtime
- Product temperature maintained
- Low vandalism rate
- Reimbursable Customer Buy-In





# Measured Initiatives



- Controls
  - Savings calculated on Scheduling Only
  - LON Web based Solution Based

Example of  
Conditions Before  
Controls Retrofit →

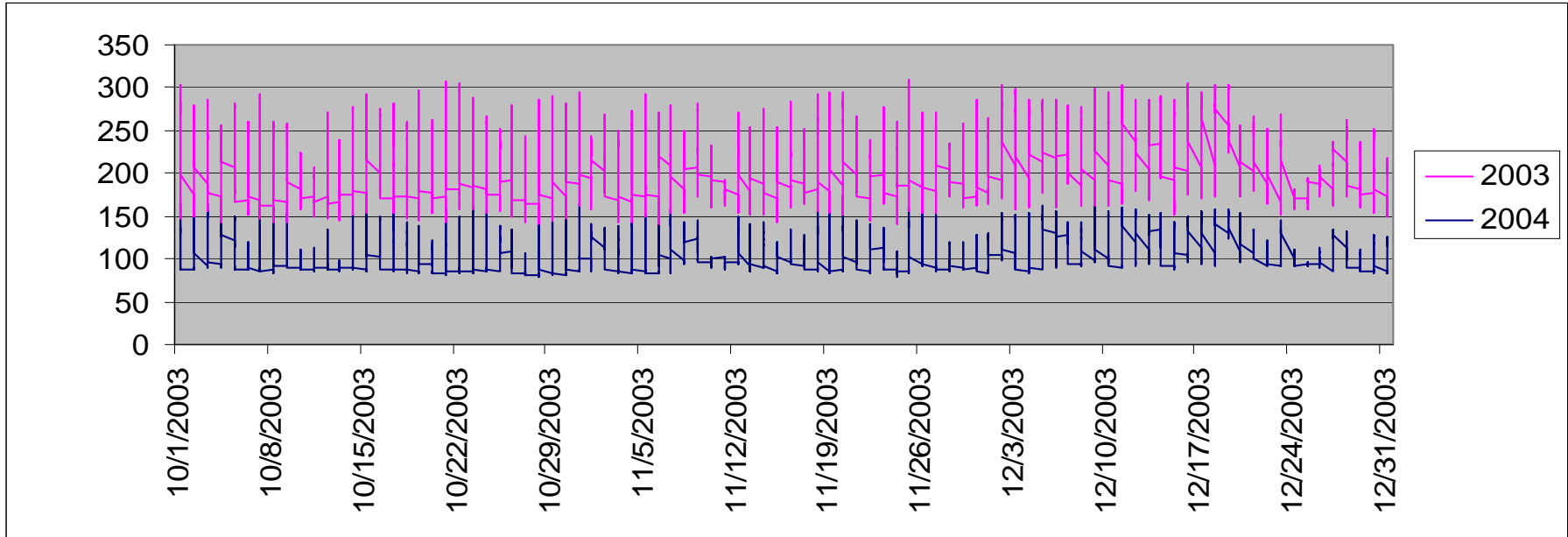




# Building 5746 - Officer's Club

## KWH SAVINGS

### 1<sup>ST</sup> QUARTER 2003 AND 2004



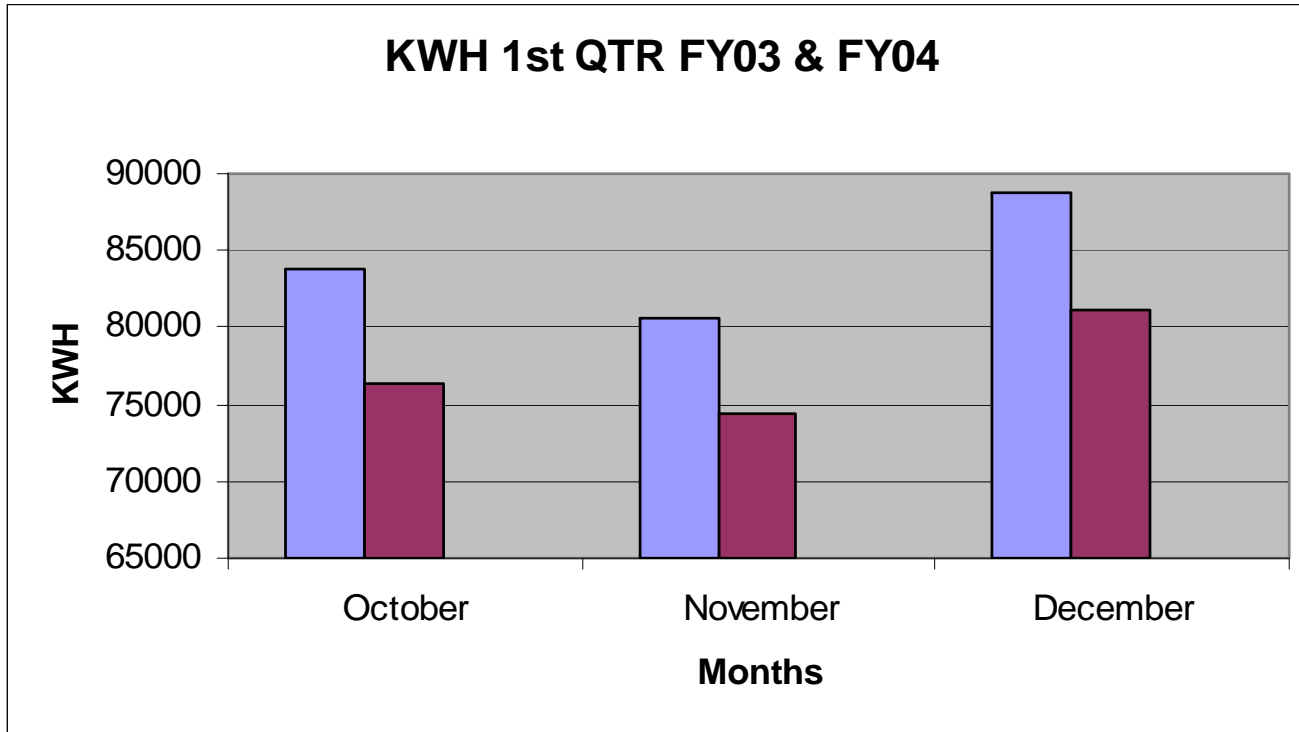
TOTAL 2003	253177 KWH
TOTAL 2004	232016 KWH
NET SAVED	21161 KWH
\$\$\$ SAVED	\$ 1,575.25

NOTE: PEAK COOLING SAVINGS SHOULD BE GREATER



# KWH SAVINGS

## 1<sup>ST</sup> QUARTER 2003 AND 2004



**2003**  
**2004**

**83775**  
**76368**

**80671**  
**74455**

**88731**  
**81197**



# Measured Initiatives



- ESPC - Delivery Order #2
  - VFD, Lighting, Vending Misers, Controls
    - Super T8 and Ballast (28 watt Lamps)
  - Solar Powered Pool Heating
  - Cooling Tower Filtration Project
  - Preventive Maintenance
  - Building Re-Commissioning
    - Air and Water Flow Balancing



# What Matters Most!



- Education
  - In-House Work Force
  - Customers
- Collaboration
  - ESPC Contractor, Construction Contractors, In-House Work Force
- Leadership Support
- Measurement & Verification
- Good Preventative Maintenance and Operational Maintenance