

Charting a Course to Energy Independence

Providence, RI
August 9-12, 2009





Managing Energy In Military Healthcare Facilities

U.S. Air Force Medical Service
Energy Management at the Enterprise Level



Overview

- Air Force Medical Facilities at a Glance
- What Sets Medical Facilities Apart
- Managing at the Enterprise Level
- Engaging the End User



USAF Medical Service at a Glance

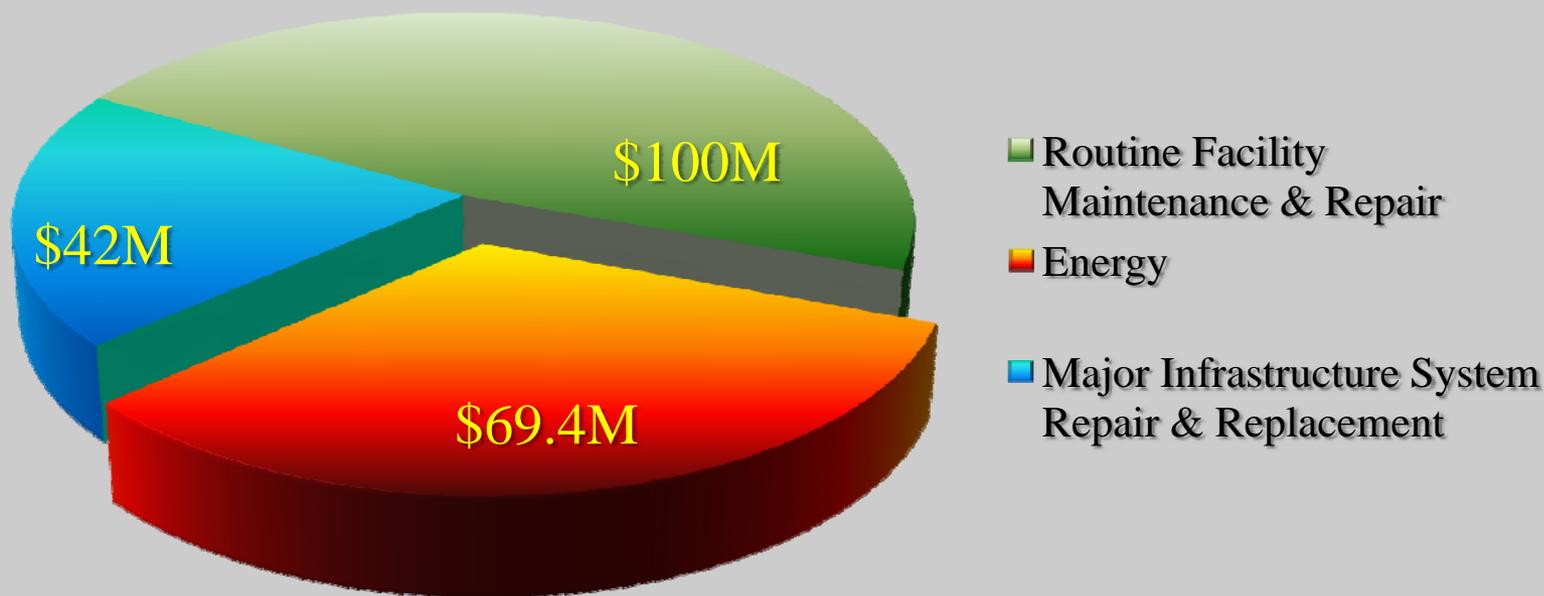
- 735 Medical Buildings at 76 Bases Worldwide
- Major Medical Centers to Satellite Pharmacies
- Average Age – 26.88 years
- Total Sq Ft – 19,124,293
- Energy Use – 2.7 % Incline





AF Medical Service at a Glance

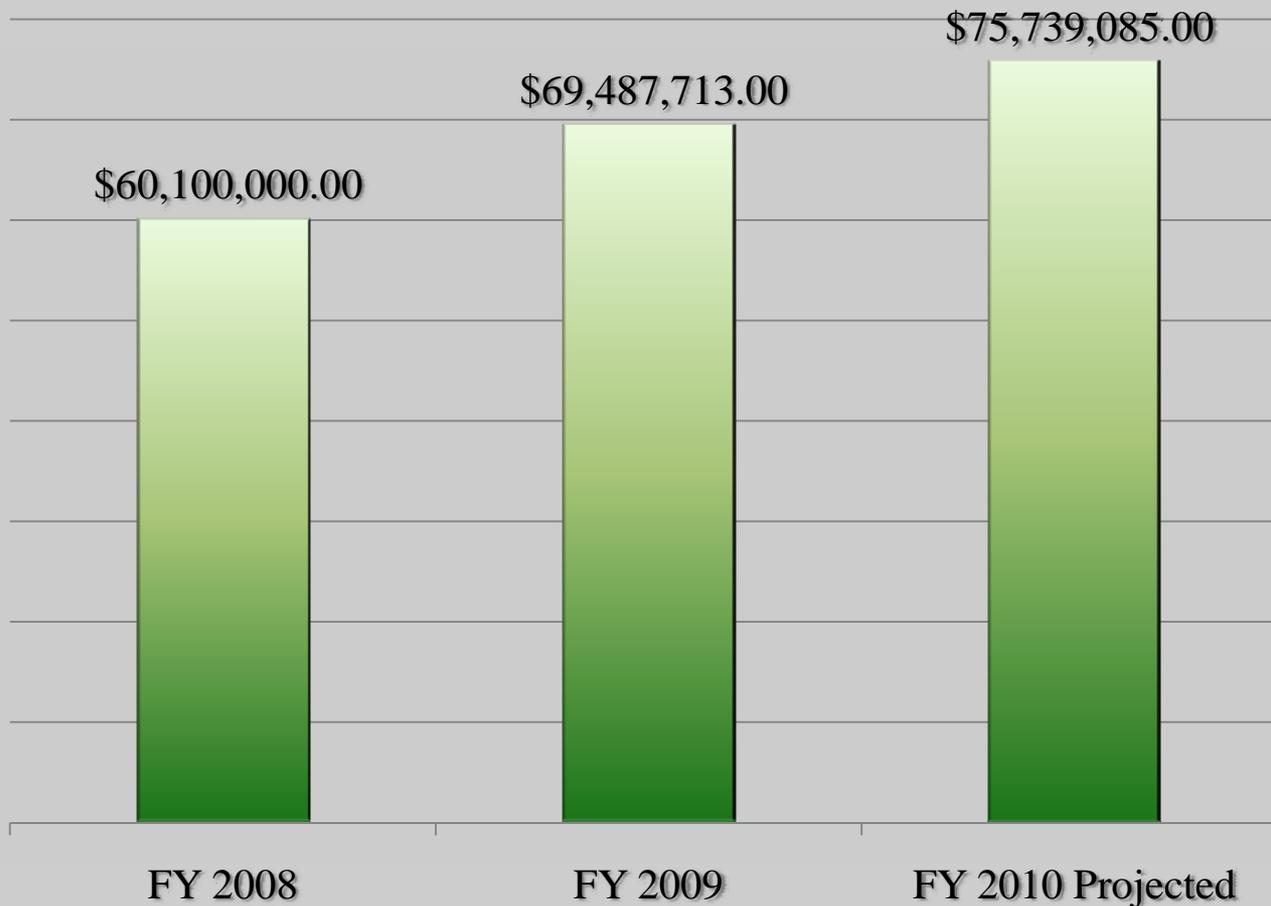
AFMS Annual Cost To Maintain Operational Status Quo





USAF Medical Service at a Glance

AFMS Energy Costs





USAF Medical Service at a Glance

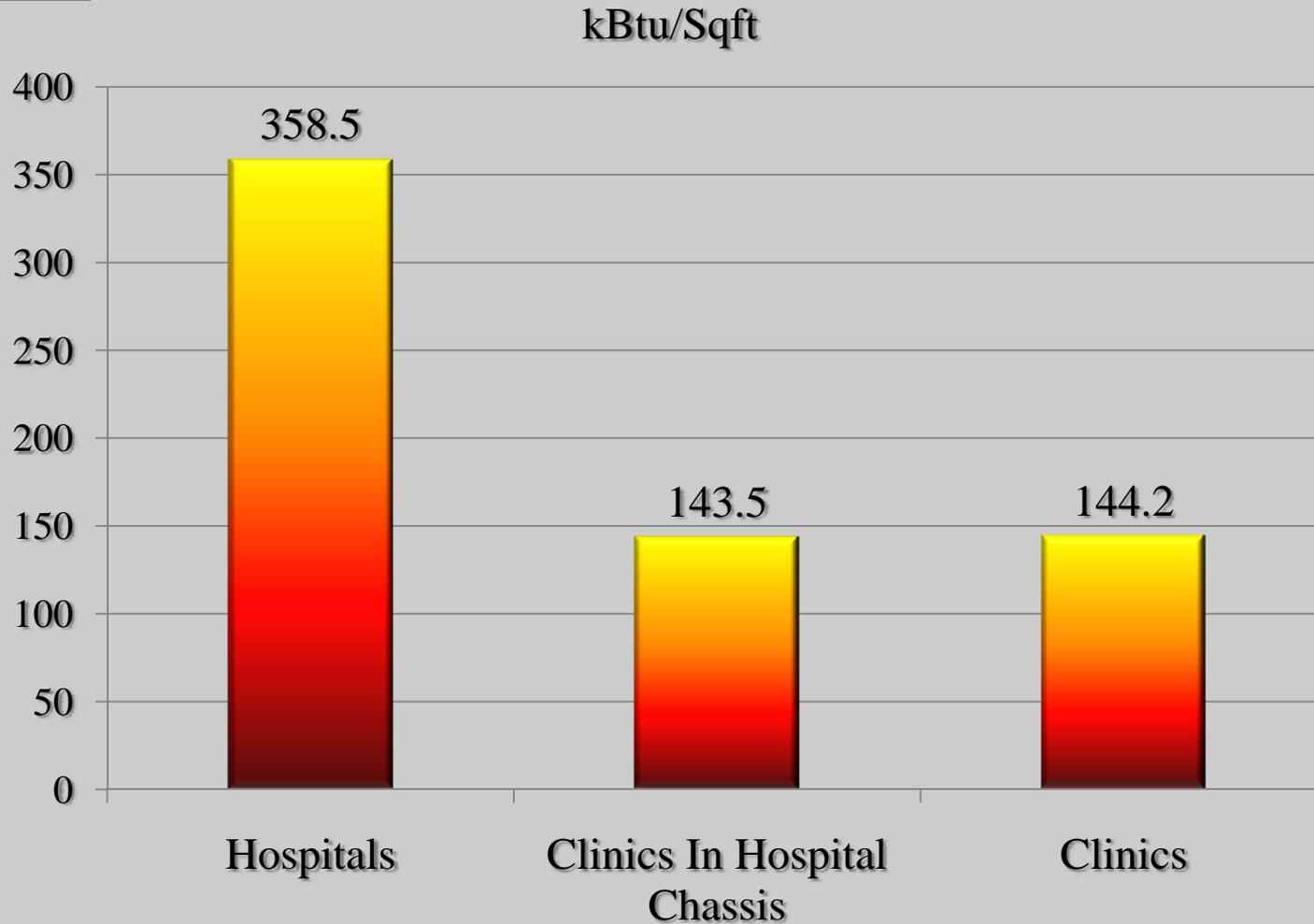
Three Basic Facility Models

- Hospitals & Medical Centers
- Clinics In Old Hospital Chassis
- Clinics Designed & Constructed as Clinics





USAF Medical Service at a Glance





USAF Medical Service at a Glance

- AFMS Energy Usage – 2.7% ↑
- Hospitals & Med Ctrs – 3.6% ↑
- Clinic in Hosp Chassis – 0.4% ↑
- Clinics – 5.3% ↑



What Sets Medical Facilities Apart

- 24/7 Schedule of Operations
- Typically the most energy intense user on base
- Special indoor air quality requirements
- Stringent NFPA, AIA, Joint Commission & AAAHC Requirements
- Separate Funding Stream – Defense Healthcare Program (DHP)



What Sets Medical Facilities Apart

Military Hospitals & Medical Centers

- Little Difference in Construction
- Out-patient Services (Clinics)
- Increased Space for Military unique functions (Aerospace Medicine, Out-Patient Pharmacy)
- War Ready & Deployable Staff





What Sets Medical Facilities Apart

Clinics (Med Business Occupancies)

- Much larger footprint (100k - 300k sq ft)
- Many energy/space intense functions not typical in commercial facilities (Radiology Centers, Pharmacies, Bioenvironmental Engineering, Laboratories, etc.)
- Clinics in large old chassis originally built as Hospitals and missions reduced





Managing at the Enterprise Level

“It’s Good to be King” *well, maybe. . .*

Managing centrally has it’s Pros & Cons

- **Pro** – You can spend your precious \$\$\$ where they are needed most and put to use best
- **Con** – You have the responsibility to identify where the greatest need is and who will use your \$\$\$ best
- **Pro** – You can see where your money is going
- **Con** – So can everyone else!!!! Accountability
- **Pro** – If distribution is fair and logical, your throngs will support
- **Con** – If capricious and unfair, they’ll get a rope.



Managing at the Enterprise Level

Challenges Faced by AFMS

- Collecting data when the enterprise is global & secure
- Establishing a consistent & fair Unit of Measure
- Assimilating the data
- Creating meaningful & user-friendly management tools
- Getting the tools in the hands of those who can best use them



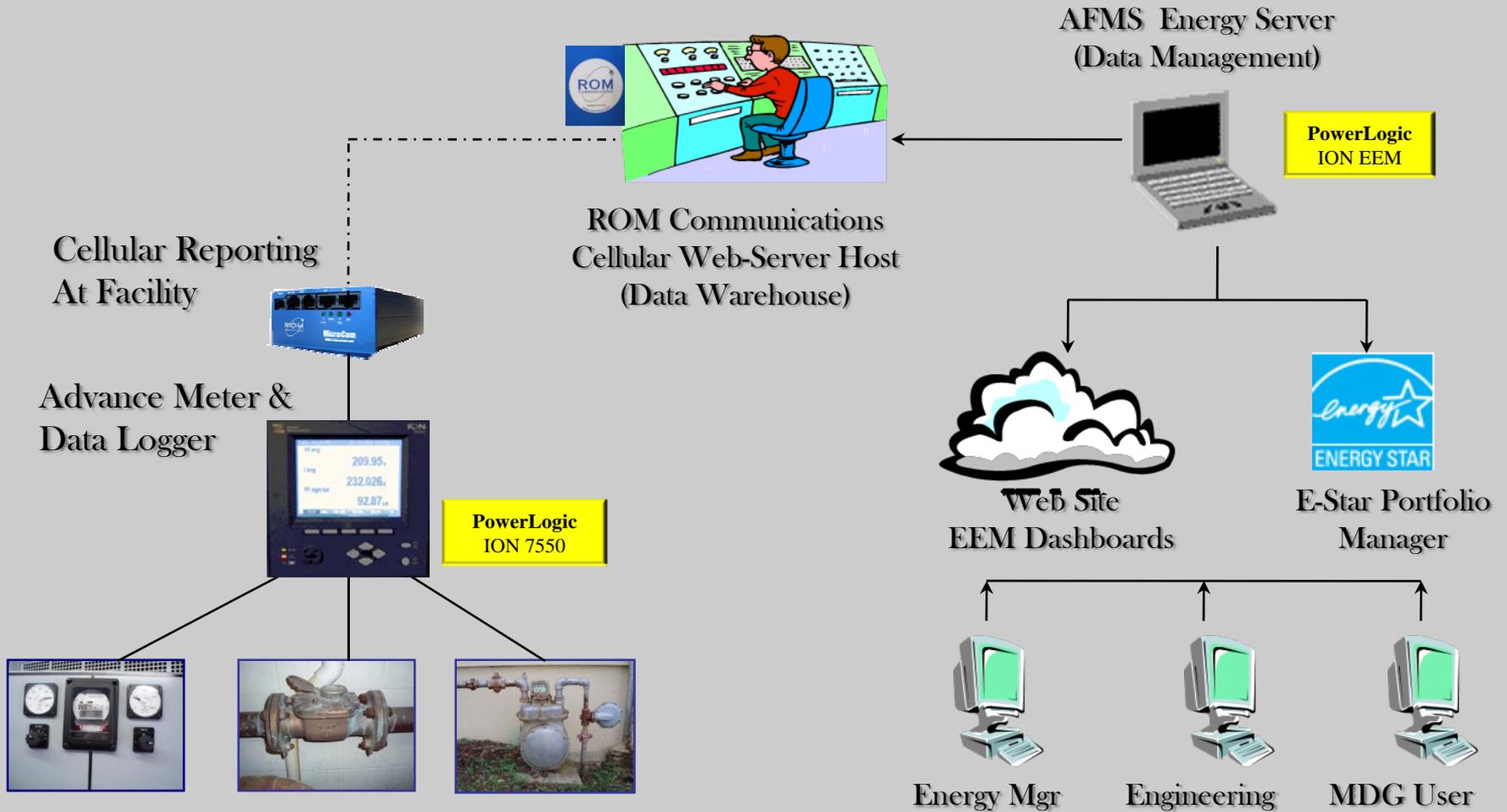
Managing at the Enterprise Level

The AFMS Energy Monitoring Program

- Deployed and uses advanced meters to collect energy data
- Transmits data to a central web-host service via cellular
- Established kBtu/sqft as a consistent unit of measure
- Utilizes Energy Star to normalize and draw comparisons
- Provides web-based user-friendly energy management tools
- Supports the user with instruction on using tools to optimize
- Provides Peer to Peer comparisons to motivate conservation
- Identifies Facilities of greatest need for \$\$\$ and support



Managing at the Enterprise Level





Engaging the End User

AFMS Energy Monitoring Site Management Tools

ION FEM

Barksdale Energy Daily

Barksdale Electric Daily (Read-Only) Chart

Feb 08 2009 to Mar 10 2009

Barksdale Gas Daily (Read-Only) Chart

Feb 08 2009 to Mar 10 2009

Barksdale Water Daily (Read-Only) Chart

Feb 08 2009 to Mar 10 2009

Barksdale Weather (Read-Only)

Your National Weather Service forecast

Barksdale AFB LA

Enter Your "City, ST" or zip code

NWS Shreveport, LA **Point Forecast:** Barksdale AFB LA 32.51°N 93.6°W (Elev. 177 ft) **Mobile Weather Information** **Last Update:** 3:34 pm CDT Mar 9, 2009 **Forecast Valid:** 4pm CDT Mar 9, 2009-6pm CDT Mar 15, 2009

Forecast at a Glance

This Afternoon	Tonight	Tuesday	Tuesday Night	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday
Mostly Cloudy Hi 80 °F	Increasing Clouds Lo 63 °F	Mostly Cloudy Hi 82 °F	Chance Tstms Lo 58 °F	Tstms Hi 58 °F	Heavy Rain Lo 40 °F	Heavy Rain Hi 46 °F	Heavy Rain Lo 39 °F	Rain Likely Hi 49 °F

Detailed 7-day Forecast **Current Conditions** [\(Move Down\)](#)

Hazardous weather condition(s):

Hazardous Weather Outlook

This Afternoon: Mostly cloudy, with a high near 80. South wind around 15 mph, with gusts as high as 20 mph.

Humidity: 60% **Wind Speed:** 11 mph

Shreveport Downtown Airport
Lat: 32.53°N - 93.75°W Elev: 180
Last Update on Mar 9, 2:53 pm CDT



Engaging the End User

AFMS Energy Monitoring Site Management Tools

ION EEM

Barksdale Energy Monthly

Barksdale Electric Monthly (Read-Only)

Oct 2006 to Oct 2009

Month	FY 07 (kWh)	FY 08 (kWh)	FY 09 (kWh)
January	300,000	350,000	300,000
February	300,000	300,000	300,000
March	350,000	350,000	100,000
April	300,000	300,000	300,000
May	350,000	350,000	350,000
June	350,000	350,000	350,000
July	450,000	350,000	350,000
August	450,000	350,000	350,000
September	400,000	350,000	350,000
October	400,000	400,000	300,000
November	350,000	350,000	300,000
December	350,000	350,000	300,000

Barksdale Gas Monthly (Read-Only)

Oct 2006 to Oct 2009

Month	FY 07 (Cubic Feet)	FY 08 (Cubic Feet)	FY 09 (Cubic Feet)
January	650,000	1,000,000	650,000
February	650,000	900,000	650,000
March	200,000	850,000	200,000
April	550,000	550,000	550,000
May	450,000	450,000	450,000
June	500,000	250,000	250,000
July	600,000	250,000	250,000
August	450,000	200,000	200,000
September	550,000	400,000	400,000
October	400,000	700,000	400,000
November	550,000	850,000	550,000
December	650,000	1,000,000	650,000

Barksdale Water Monthly (Read-Only)

Oct 2006 to Oct 2009

Month	FY 07 (Gallons)	FY 08 (Gallons)	FY 09 (Gallons)
January	100,000	170,000	100,000
February	100,000	120,000	100,000
March	100,000	110,000	30,000
April	100,000	110,000	100,000
May	100,000	110,000	100,000
June	100,000	110,000	100,000
July	100,000	170,000	100,000
August	100,000	120,000	100,000
September	100,000	170,000	100,000
October	100,000	140,000	100,000
November	100,000	100,000	100,000
December	100,000	100,000	100,000

Barksdale Air Force Base (Read-Only)



Engaging the End User

AFMS Sites on Energy Star Portfolio Manager

INFOCOM 3 UNCLASSIFIED EPCOM: Alpha

Portfolio Manager - Building list - Microsoft Internet Explorer provided by USAF

https://www.energystar.gov/listar/pmpain/index.cfm?fuseaction=portfolio.portfolioView

File Edit View Favorites Tools Help

Portfolio Manager - Building list

PORTFOLIO MANAGER

Home > My Portfolio

ACCOUNT INFORMATION CONTACTS FAQ FREQUENTLY ASKED QUESTIONS CONTACT US HELP LOGOUT

Portfolio Averages

Baseline Rating: 36 Facilities Included: 63	Current Rating: 36 Facilities Included: 62
Change from Baseline: Portfolio Adjusted Percent Energy Use (%): 2.8% Facilities Included: 62	
Averages are weighted by Total Floor Space. More about Baselines More about Change from Baseline, Adjusted Energy Use	

[Add a Property](#)
[Import Facility Data Using Templates](#)

Work with Facilities
[Update Multiple Meters](#)
[Share Facilities](#)

Reporting and Analysis
[Request Energy Performance Report](#)

Apply for Recognition
[Apply for the ENERGY STAR](#)
[ENERGY STAR Leaders](#)

Automated Benchmarking
[Get Started Now](#)

GROUP: All Facilities Create Group | View All VIEW: Comparison on Energy Costs Create View | Edit View | View All

Download in Excel Search Facility Name: Search

Results 1 - 50 of 63 Next All # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Facility Name	Current Rating (1-100)	Current Total Site Energy Use (kBtu)	Current Site Natural Gas Use (therms)	Current Site Electric Use (kWh)	Total Energy Cost per Sq. Ft. (US Dollars (\$))
Air Force Academy	34	23,179,810.85	22,792.5	6,125,604.0	\$0.00
Altus Medical Building	68	6,757,956.71	9,283.8	1,708,550.0	\$0.00
Andrews Medical Facility	32	55,588,474.51	51,278.1	14,789,176.0	\$0.00
Aviano AFB Hospital	71	18,213,269.19	78,730.4	3,030,549.0	\$0.00
Barksdale Medical Building	38	18,901,011.96	54,242.8	3,949,804.0	\$0.00
Beale Medical Facility	3	12,614,349.04	0.0	2,321,429.0	\$0.00
Bolling Medical Facility	16	5,886,310.86	18,370.8	1,186,763.0	\$0.00
Buckley Medical Facility	25	2,447,266.21	15,352.4	267,299.0	\$0.00
Cannon Medical Facility	44	24,583,685.30	157,039.1	2,602,513.0	\$0.00
Charleston Medical Facility	49	5,986,421.18	9,453.8	1,477,444.0	\$0.00
Columbus Medical Facility	30	5,764,038.83	4,316.7	1,562,828.0	\$0.00
Davis-Monthan Medical Facility	14	16,524,764.58	13,706.5	4,441,417.0	\$0.00
Dover Medical Building	39	10,499,029.74	0.0	2,802,412.0	\$0.00

Internet 100%



Engaging the End User

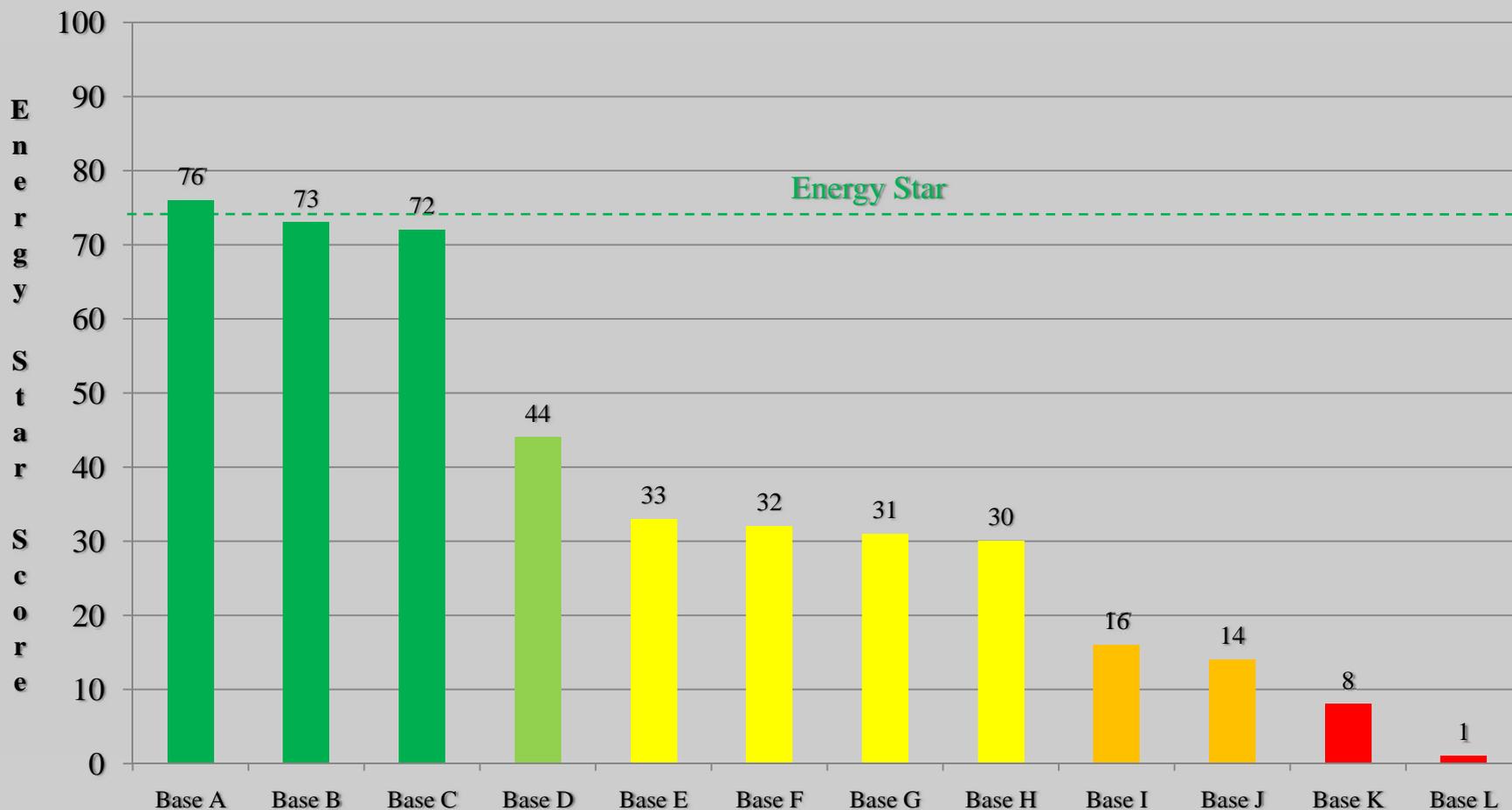
Peer Pressure Can Motivate Energy Conservation

- Making Peer Performance visible to Executive Mgt provide incentives and self-motivation
- Identify & Reward the Super Performers
 - Energy Star & E₂C Recognition
 - ECIP and Energy related Infrastructure modernization funds
- Identify & Assist the Heavy Users
 - Provide Training & Share Best Practices Concerning Energy in Healthcare
 - Invest in Retro-Commissioning
 - Infrastructure System Repair/Restoration



Engaging the End User

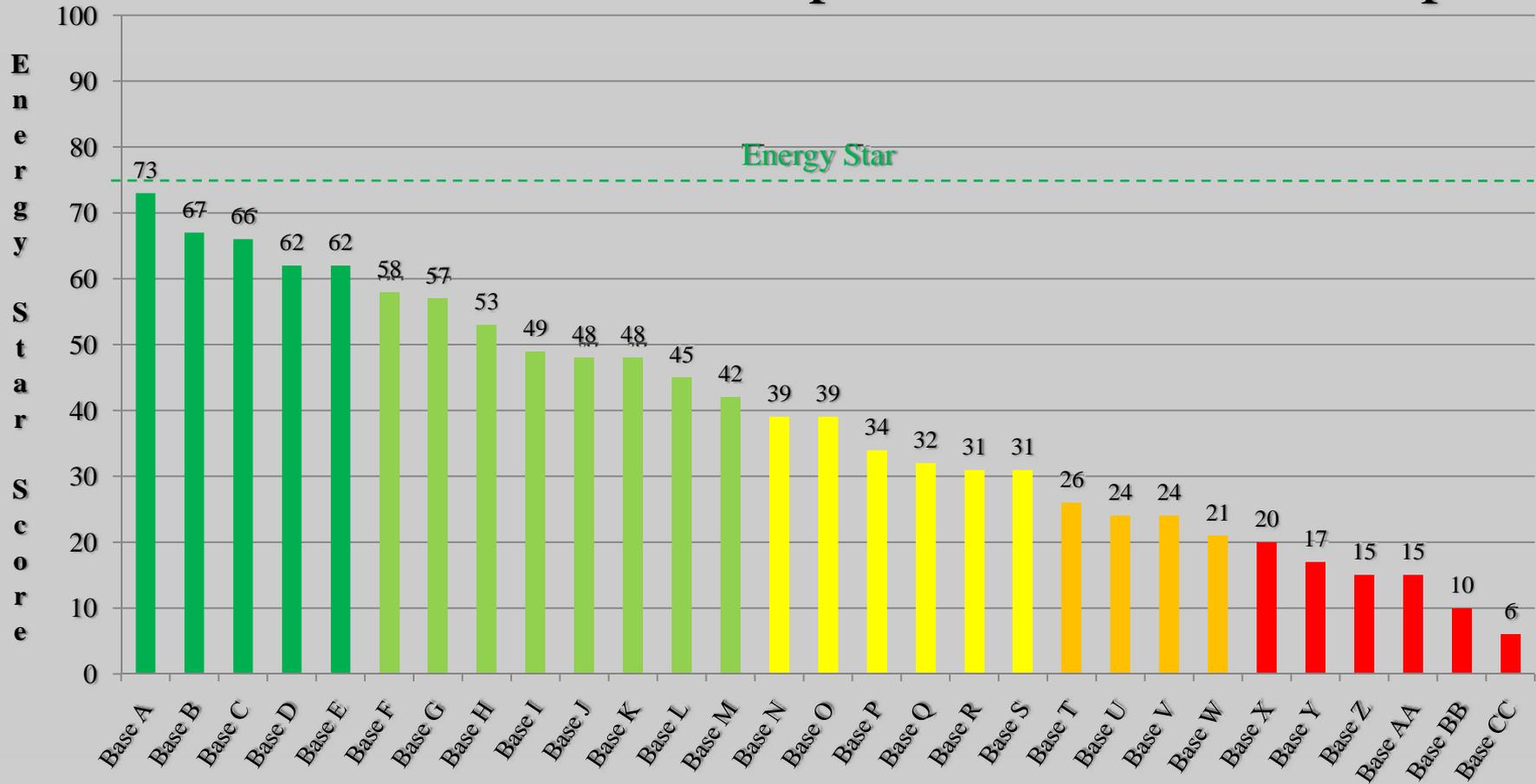
Hospitals & Medical Center Peer Group





Engaging the End User

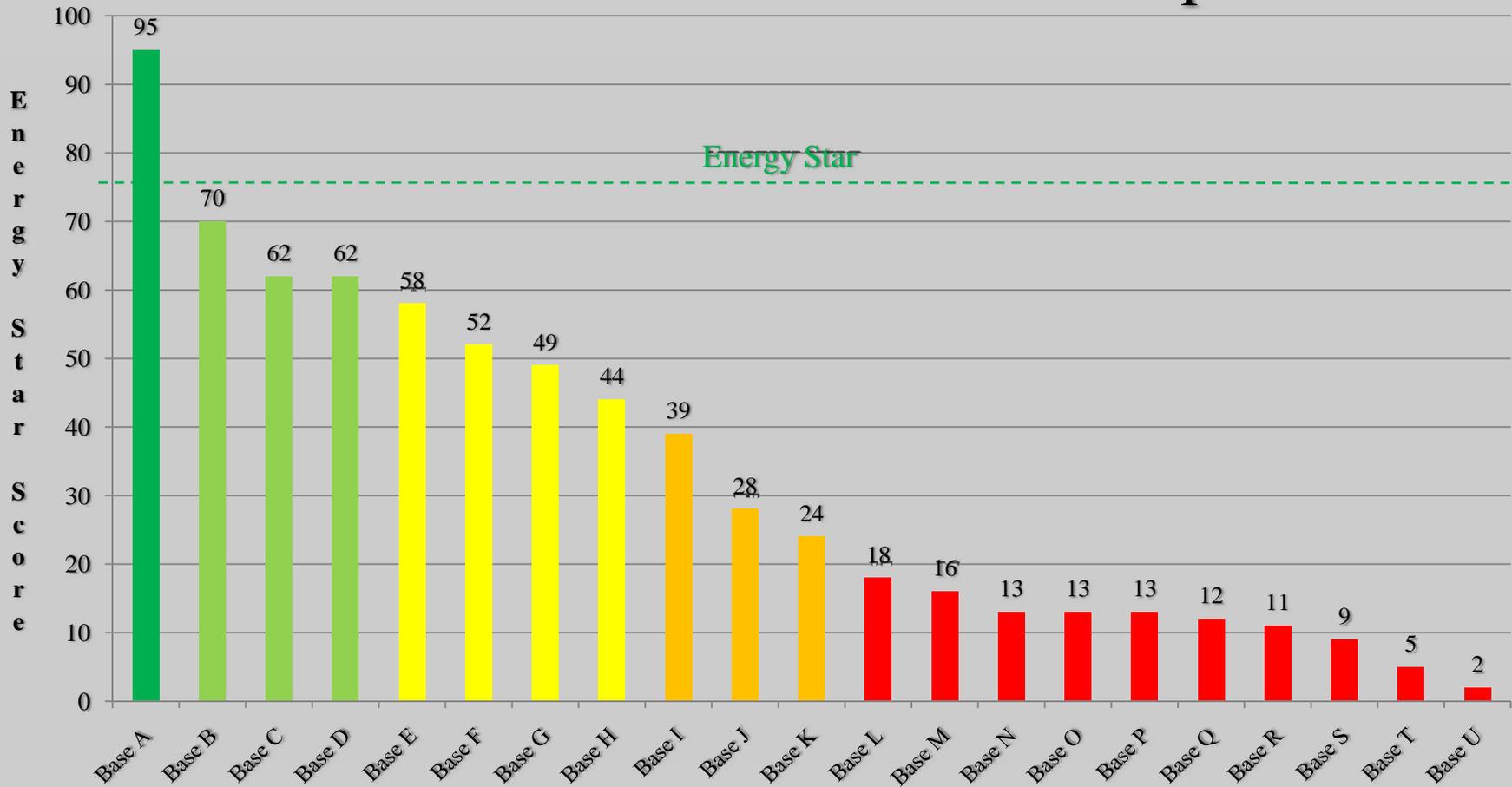
Clinics in Old Hospital Chassis Peer Group





Engaging the End User

Clinics Built as Clinics Peer Group





The Result

- Credible evidence of our Energy Program status
- Enables AFMS to quantifiably evaluate effectiveness
- Retro-commissioned four of the heaviest users
 - Immediate improvements seen
 - Infrastructure repairs programmed which will improve performance
 - Identified a design flaw associated with heavy users
 - Identified operating patterns common among heavy users – Attitude
- Peer Pressure is creating a competitive spirit among users
- Facilities are embracing and using enterprise tools
- Data is used to identify / validate infrastructure repair needs
- We can make really cool slides



Recap

- Air Force Medical Facilities at a Glance
- What Sets Military Medical Facilities Apart
- The Value of Managing at the Enterprise Level
- The Importance of Engaging the End User



Q&A