



# IMCOM Facilities Energy

September 14, 2016

US Army Installation Management Command G4

IMCOM integrates and delivers base support to enable readiness  
for a self-reliant and globally-responsive  
All Volunteer Army

**WE ARE THE ARMY'S HOME**



# Command Universe



## Land Acreage Managed by the Cmd

- United States 14,417,325
- Europe 136,156
- Asia 28,959

## Roads

- Paved 101,625,883 SY
- Unpaved 42,126,531 SY

## Paved Area (excluding roads)

- 354,807,080 SY

## Railroads

- 551 Miles

## Family Housing

- Owned 10,974
- Leased 4,978
- Privatized 84,882
- Community\* 414,934

## Barracks

- Adequate Spaces
- Permanent Party 189K
- Training 72K
- ORTC 57K

\*69% Army Families live in local community housing

## # Installations

- 4 Regions and 62 IMCOM Managed Installations

## Command Overview (FY15 vs. Baseline)

- 13.3% Energy Intensity Reduction
- 19.3% Water Intensity Reduction
- 50.0% Waste Diversion

## Full Time Energy Managers

- Total Requirements 138
- # Civ Assigned 57
- # REM Contracted 27
- # Military 0

## Army End-Strength on our installations (FY15 ASIP data)

- OFF 78,116
- WOF 16,197
- ENL 455,759
- USD 147,363
- OTH 19,087

## Airfields

- Army Airfields 36
- Army Heliports 9

## Buildings

- (Million square feet)
- United States 610.4
- Europe 90.5
- Asia 48.4

## Utilities

- (Electric, Gas, Water, Sewer)
- 39,510 Miles



# IMCOM Energy Overview



## Energy and Water Efficiency and Security

**Objective:** Create energy and water efficient installations by holding users accountable, modernizing facilities, installing new technologies, and leveraging partnerships that will provide Senior Commanders an increased level of energy and water security leading to sustainable and resilient infrastructure and mission assurance.

### Keys to Success

- 1) **Conservation** - Reduce energy and water consumption.
- 2) **Facility Efficiency** - Increase energy and water efficiency and modernized infrastructure.
- 3) **Resiliency** - Improve development of renewable/alternative energy

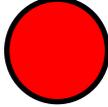
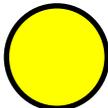
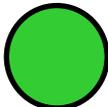
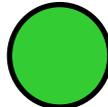
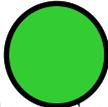
### IMCOM Leads the Way

- ✓ One of the best EUIs in DoD and Federal government
- ✓ Most successful alternative financing (UESC/ESPC) program in Federal government
- ✓ Attained statutory water and waste diversion goals



# IMCOM Scorecard



Mandate	Congressional/OMB Goal	IMCOM FY15 Score	IMCOM Performance	Issues/Actions
	<b>Reduction in Energy Intensity:</b> Reduce 3% per year to total by 30% by 2015 (2003 baseline)	 Score: Red	<ul style="list-style-type: none"> <li>• -13.3% vs. -30% goal</li> <li>• 1.3% increase in energy intensity in FY15 vs. -3% goal</li> </ul>	<ul style="list-style-type: none"> <li>• BRAC square footage impacts</li> <li>• RCI housing impacts</li> <li>• FY15 consumption down 2.8% and cost down 10.1%</li> <li>• Alternative financing (ESPC, UESC) will be required to meet goals</li> </ul>
	<b>Use of Renewable Energy:</b> At least 3% of total electricity consumption (FY07-09), 5% (FY10-12), 7.5% (FY13 +)	 Score: Yellow	<ul style="list-style-type: none"> <li>• EPACT: 5.0% vs. 7.5% goal</li> <li>• NDAA: 12.4% vs. 25% by 2025 goal</li> <li>• Total renewable energy produced/purchased increased 56% over FY14</li> </ul>	<ul style="list-style-type: none"> <li>• Increased from 1.8% to 5.0% on EPACT goal from FY14-15</li> <li>• Increased from 7.8% to 12.4% on NDAA goal from FY14-15</li> <li>• Small projects (&lt;10MW) executed with ESPC/UESCs and ECIP</li> <li>• OEI executing large projects (10MW)</li> </ul>
	<b>Reduction in Potable Water Intensity:</b> Reduce consumption by 2% annually for 26% total by FY 2020 (2007 baseline )	 Score: Green	<ul style="list-style-type: none"> <li>• -19.3% vs. -16% goal</li> <li>• 4% increase in water intensity in FY15 vs -2% goal</li> </ul>	<ul style="list-style-type: none"> <li>• BRAC square footage impacts</li> <li>• Privatization of water systems has resulted in reduced waste and increased efficiency</li> <li>• Emphasis on water conservation and non-potable water for irrigation</li> </ul>
	<b>Reduction in Fleet Petroleum Use:</b> Reduce by 2% per year thru FY2020 (Base 2005)	 Score: None	<ul style="list-style-type: none"> <li>• Army wide usage has decreased 21% since FY05</li> <li>• Alternative fuel usage has increased 800% since FY10 to 16% of total fuel in FY15</li> </ul>	<ul style="list-style-type: none"> <li>• Efficient use of NTVs included in Energy OPORD</li> <li>• Funded CNG station at Fort Benning</li> <li>• USAG Bavaria purchased electric vehicle NTVs for DPW shop use</li> </ul>
	<b>Solid Waste:</b> 50% of Non-Hazardous Solid Waste Diverted from the Waste Stream by FY 2015	 Score: Green	<ul style="list-style-type: none"> <li>• 50% diversion rate vs. 50% DoD SSPP FY15 goal</li> </ul>	<ul style="list-style-type: none"> <li>• Data from 6 installations under review</li> </ul>



# FY 16 Sustainment Allocation



**Initial FY16 Total**  
**\$2,665,243.4K = 100% FSM**  
**\$2,136,171K = 80% FSM\***

**\* Subject to change once actual allocations are developed and forwarded to IMCOM by ABO**

## Uses of sustainment funds:

- Regularly scheduled adjustments & inspections
- Preventive maintenance tasks
- Emergency response & service calls
- Major repairs or replacement of facility components that are expected to occur periodically throughout life cycle of facilities (e.g., roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting)
- Manpower payroll



# FY16 - R&M



	Approved – 20 JAN 16 (\$M)
Europe Infrastructure Consolidation*	\$73.4
Cyberspace Strategy*	\$118.1
Stationing (1 <sup>st</sup> TSC / 3 <sup>rd</sup> ESC)*	\$18.2
Cadet Barracks Upgrade Program*	\$81.1
Facility Reduction Program (QDEM)	\$0
Army Energy and Utility Program R&M (QUTM)	\$17.0
IMCOM 1-N List	Available Funds (\$146.7)
Recapitalization Deficit R&M (ERVT)	
Force Projection Outload Facility R&M (EFPR)	
Unaccompanied Housing Permanent Party R&M (E4H8)	
Initial Entry Training (IET) Barracks R&M (E3H8)	
Utility Repair Projects (QUTM)	
<b>TOTAL</b>	<b>\$454.5</b>

\* = DA Leadership Initiatives



# Example of MCA Achieving 50% saving



GreenGov Presidential Awards 2016:

13th CAB ASB Hangar, Fort Carson

136,377 SF aircraft maintenance facility including administrative & operations space, maintenance and repair shops, parts and tool storage, over 86,500 sf of aircraft maintenance bays. Design-Build (DB) Net Zero Energy Usage and LEED Platinum certified facility at the cost of LEED Silver.

Included a guaranteed energy savings over ASHRAE 90.1-2007 baseline facility (as required by the RFP and calculated in accordance with Appendix G of the standard) of 51% without renewable energy systems with an additional 49% savings through the use of renewable systems

Examples of ECM features incorporated are increased building envelope thermal performance, detailing the air barrier to achieve leakage rate of 0.15 cfm/sf, transpired solar collection wall to preheat outdoor air during heating days, energy recovery from exhaust air streams to pretreat outside air, including dual gasketing on the hangar doors to limit air infiltration at the hangar, LED lighting with addressable ballasts, a building automation system automatically controlling lights with daylighting and occupancy sensors, timers and overrides, in-slab radiant heating system in the hangar to decrease forced air inefficiencies, a variable speed air compressor system, connecting the facility to a district cooling and heating plant, and incorporating a photovoltaic solar panel array that produces approximately 2,132 MWh of electricity annually



# IMCOM implements Army Policy



- Commands will implement Net Zero to the maximum extent practical and fiscally prudent
- use life-cycle cost analysis to assess any proposed new Net Zero initiative or project.
- Renovate as a high performance building for a 30% energy efficiency or Better compared to ASHRAE Standard 90.1 if fiscally prudent.
- **Limited SRM Funding:**
  - Limits ability to perform deep energy retrofits
  - Alternative financing methods required to execute energy projects
  - Combination of SRM and ESPC funding to execute deep energy retrofits?