U.S. Army Engineering and Support Center, Huntsville, Metering and Meter Data Integration for Huntsville Energy Initiatives

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US Army Corps of Engineers
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Topics of Discussion

- Army Meter Program (AMP)
- Meter Data Management System (MDMS)
- Utility Monitoring and Control System (UMCS)
- Information Technology Services (ITS) Program

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Army Central Meter Program (AMP)

Enterprise Energy Data Reporting System

Meter Data Management System

2) Collect raw meter data

Raw meter data

3) Transmit

Front End Server

Gas Meter

Electric meter

MDMS Gateway

1) Gas pulse counts

1) Analyze meter data

1) Water pulse counts

2) Report Generation

Water Meter

Commodity	Timestamp	Raw Usage Reading	Units
Gas	Apr 16, 2012 10:00:00 AM	24.70	cf
Gas	Apr 16, 2012 10:15:00 AM	24.70	cf
Gas	Apr 16, 2012 10:30:00 AM	24.70	cf
Electricity	Apr 16, 2012 10:00:00 AM	18,226.88	kWh
Electricity	Apr 16, 2012 10:15:00 AM	18,238.42	kWh
Electricity	Apr 16, 2012 10:30:00 AM	18,250.12	kWh

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Army Central Meter Program – Budget Update

- **FY13 funding reduced by about 51% for AMP, including MDMS**

- **Program Impacts:**
  - ► Limits execution to only Phase I electrical

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Meter Data Management System (MDMS)
(An Energy Management System)

- **Short Term:**
  - ➢ All garrisons MDMS Gateways under contract by end of FY13.
  - ➢ All Army Installation MDMS Gateways installed by end FY14

- **Programmatic Good News**
  - ➢ Provided Mrs. Hammack a capabilities briefing
  - ➢ Robust effort to make this system all it can be
    - o Monthly Command/Garrison stake-holder web meetings used to demonstrate MDMS and solicit feedback on how to improve MDMS
    - o MDMS Success stories
      - • Maximize energy data input into MDMS through:
        - • Automated data transfer where available
        - • Manual data transfer (Utility Privatization System)
  - ➢ Natick connected and reporting as of 26 March
  - ➢ OSD Energy Reporting GAP Analysis

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Army Central Meter Program (AMP)

- AMP mission is to ensure that all metering and energy monitoring system procurement and fielding contribute to the Army end-state vision to meter buildings and provide data management capability.

- **FY12 Accomplishments**:
  - ► All EPACT2005 electric meters put under contract for a planned end state
    - 7643 AMP installed electric meters
    - 6160 AMP metered facilities

- **FY13 To Date:**
  - ► Meter Installation
    - 465 AMP installed electric meters
    - 393 AMP metered facilities
  - ► Technology transfer/lessons learned:
    - Article published in October Public Works Digest
    - Webinars / Briefings to stakeholders on AMP related subjects

- FY13 Remaining:
  - ► Meter Installation
    - 2762 AMP installed electric meters
    - 2121 AMP metered facilities

- **Good News:**
  - ► Installation of accredited metering system servers is allowing connection of meter data to MDMS automatically, beginning with the meters at Natick.

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Army Central Meter Program Update – Simulators

- Projected meter installs complete by 30 Apr 2013.
- Meters will be integrated into existing installation metering servers
- Meters collect simulator energy usage; facility electrical usage to be metered separately as a part of this study.
- Study captures/analyzes data for June-Aug and Sep-Nov 2013

INSTALLATION	ON-SITE POINT OF CONTACT	SIMULATOR NAME
Fort Stewart	Larry Durrence-Training Support Officer	Engagement Skills Trainer
Apr-13	Wayne Shill-Supervisor Flight Simulations	Flight Simulator
		Building 1292
Fort Hood	Eric Csizmesia-Flight Simulation Division Chief	Flight Simulator
Apr-13	Eldred Nix-Simulation Section Lead	Fire Support Combined Arms Tactical Trainer
Fort Bragg	Ron Spencer-Chief, Simulation Branch	Vertical Wind Tunnel
Apr-13		Longbow Crew
		Flight Simulator
		Building P2055
Fort Bliss	Don Colyer-Training Support Officer	Flight Simulator
Apr-13		Mobile Tank Simulator
Fort Carson	Clair Smart - Flight Simulations Facility Manager	Aviation Combined Arms Tactical Trainer
Apr-13		

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Army Central Meter Program Update – Data Centers

- **Scope**: Meter the electrical energy consumption of seven pilot data center sites to determine the path forward for metering all data centers.

- **Schedule**: Projected meter installation completion date - 27 Sept 2013
  ► Analysis projected completion – 01 Apr 2014 (MAY GO LONGER)

- **Status**: All site surveys completed.

- **Risk**: Schedule: Significant coordination required for outages. Mitigation measures include early/thorough outage coordination and communication of needs for data center outages for meter installation

- **Site Locations**:
  Redstone Arsenal   Fort Bragg
  Fort Leavenworth   Aberdeen Proving Ground
  Fort Knox   Fort Carson
  Camp Zama, Japan

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Army Central Meter Program Update – Accreditations

- Accreditation Documentation & Testing is proceeding as planned, however, no accreditations are being issued

- Accreditation Packages are delayed within Information Assurance Certification or Accreditation (IACORA)
  - ►IACORA is continuously implementing new requirements
  - ►HNC is elevating concerns thru command channels

- Memorandum of Agreement still in staffing; may be delayed at Network Enterprise Technology Command (NETCOM) request pending incorporation of assigned funding responsibilities

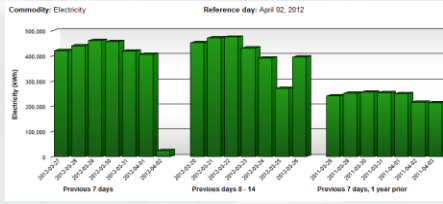**BUILDING STRONG**®

Way Ahead

- Continue with meter installs; remainder primarily OCONUS, Army Reserve and National Guard locations

- Continue with server installs and testing for INET configuration until the Interim Authority to Operate (IATO) expires in mid-April 2013

- Resume server installs when Interim Approval to Operate (IATOs)/Approval to Operate (ATO) are released by IACORA and complete NETCOM approvals

- Work with Installation Information Infrastructure Modernization Program (I3MP) to best utilize available connectivity funds

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Meter Data Management System
(An Energy Management System)

Total Army Energy Use
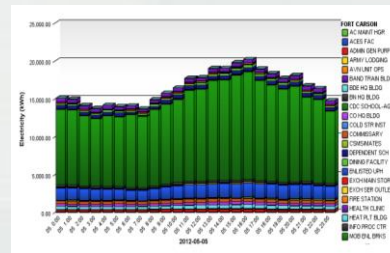

Installation/Building Historical Energy Usage

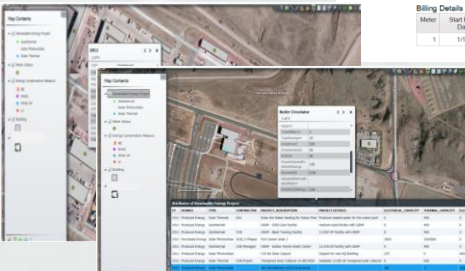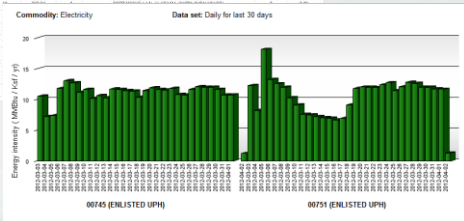Installation Meter Status Report

Command/Region Energy Use

Energy Use by Category Code

Tenant Billing

Rank Installations/Buildings by Energy Intensity

Integrated Energy Project and Energy Use Views

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Meter Data Management System (MDMS)
(An Energy Management System)

- Natick connected and reporting as of 26 March
  - ► Sets the path for other sites using same configuration (INET)
  - ► Next sites to connect will be Fort Polk, Yakima, and Dugway PG

- Meter Data from Utility Companies including UP Contractors
  - ► Fort Benning – Receiving daily data updates in MDMS (860 electric meters)
  - ► Fort Huachuca – Discussions on-going to receive data (approx. 2,000 meters)
  - ► Fort Belvoir – Discussions on-going to receive data (approx. 850 meters)
  - ► Draft letter is prepared for ACSIM to send to Dominion Virginia Power (DVP) requesting meter data for all Army installations served by DVP

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Recent MDMS Success Stories

- Fort Carson – Analyzed data and developed recommendations to implement energy savings measures. (HVAC setbacks, light harvesting, high energy intensity per SF, etc.)

- Tallahassee, FL USAR – Identified cause of equipment damage and confirmed power outage from a loss of one phase of the three phase system

- Jackson, MS USAR – Identified increased water use 50 times over normal. Malfunctioning flush valves were replaced

- Athens, GA USAR – Diagnosed cause of frequent power outages by reviewing raw data files. A single-phasing condition was occurring during the outages. MDMS contractor recommended additional steps to pinpoint the problem

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Meter Data Management System
(An Energy Management System)

VISION

MDMS will provide the integrated view.

Leveraging MDMS for Energy Program Integration

Installation Energy Footprint (MDMS)

- UMCS/EMCS
- Energy Projects
- Utility Privatization
- Metering
- Utility Rates
- PPA
- ESPC
- SRM Energy activities
- Renewable Energy
- Smart Grids

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Utility Monitoring and Control Systems (UMCS) Mission

The Utility Monitoring and Controls (UMCS) Program provides:
- Design, procurement and installation services of electronic data acquisition and control systems
- Includes UMCS, SCADA, HVAC systems, alternative energy systems, fire and life safety systems, building automation systems (BAS), and other electronic systems.

The UMCS Product Delivery Team (PDT) provides:
- Integrated and dedicated team of experts

The UMCS PDT is supported by the UMCS MCX to provide:
- Consistent and current technical application of these systems
- Application of approved information assurance (IA) measures for connectivity solutions.

BENEFITS of UMCS

- Key element to an energy-efficient facility.
- Insures energy-efficient operation of the facility by monitoring, controlling, and tracking energy consumption.
- Useful for the operations and maintenance of the monitored equipment and provide visual screens of operation and alarms/detection of malfunctions or abnormalities.
- Saves both energy dollars and Operations and Maintenance dollars for the tax-payer.

Utility Monitoring and Control Systems Background

- **UMCS Mandatory Center of Expertise (UMCS-MCX)**

  - UMCS-MCX chartered in 1981
  - HQ USACE response to multiple failed systems and Court Cases
  - UMCS-MCX developed design criteria, specifications and testing procedures that resulted in success of UMCS projects
  - Originally Known as Energy Monitoring and Control Systems (EMCS)
  - Name Changed in 1991 to UMCS to include all utilities for energy and environmental saving opportunities

Utility Monitoring and Control Systems Services Provided

- **Survey, Design, Procurement, & Installation**

- **Master planning**

- **Arc Flash Surveys**

- **Development of Criteria (e.g., Technical & Performance Specifications, Technical Manuals, etc.)**

- **System Test and Evaluation**

- **Preventive and Corrective Maintenance and Service**

- **Commissioning and Retro-commissioning**

- **Training**

Utility Monitoring and Control Systems Design & Installation

Procurement and Installation of:

- Building Automation Systems
    - Controls Upgrade, Repair and Replacement
    - Integration
- HVAC Systems
    - Chiller and Boiler Repair/Replacement
    - AHU and Ductwork Repair/Replacement
    - VAV and Fan Coil Repair/Replacement
- Fire and Life Safety Systems
    - Fire Detection and Alarms
    - Smoke control and Chemical/Biological Detection
- SCADA Systems
    - Electrical and Water Distribution
    - Gas/Oil Distribution
    - Waste Water Treatment
- Utility Meters
- Alternative Energy Systems
- Maintenance and Service of all above systems

Information Technology Services (ITS) Program

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ITS Program Mission

Support the Warfighter through partnering with DOD organizations in the procurement of Information Technology Technical Services, Hardware, and Software commodities utilizing various acquisition tools and methodologies.

ITS Program Background

Huntsville Center has rich history in the Program Management and Acquisition Support for DOD and USACE Automated Information Systems

- TRACES, MCACES, PAX,
- AFCS, ULN, ENGLink, P2

The ITS Program was established in October 2012 due to an overwhelming number of customers seeking acquisition support in the IT technical services and hardware/software commodity arena

ITS Program Capabilities

The ITS Program maintains:

- A dedicated cadre of project management and acquisition professionals with a host of private industry and government experience in the procurement of IT services and commodities.

- Extremely knowledgeable in the usage of Government-Wide Acquisition Contract (GWAC) vehicles such as:
    - Army CHESS
    - GSA ALLIANT
    - GSA ALLIANT Small Business
    - GSA 8A STARTS
    - And various other GWAC vehicles

- Internal contractor support for Information Assurance and Technical Expertise

- Resource Management and legal professionals

ITS Program Capabilities (continued)

The ITS Program has experience in:

- Acquiring various level of IT procurement approvals
- Obtaining various determinations and findings (D&F) approvals for IT commodities
- Obtaining and renewing software licenses
- Procuring IT hardware (with installation and maintenance requirements)
- Small credit card purchases of IT items
- Obtaining technical services for internal organizational support
- Obtaining technical services for operations and maintenance of various automated systems
- Procuring small business and large business acquisitions

ITS Program Customers

Existing Customers

- DOD High Performance Computing Modernization Program (HPCMP)
- Army Publishing Directorate
- Army Acquisition Center of Excellence
- Army CHESS Program Office
- Army PEO Missiles and Space Command
- HQUSACE Corporate Information (CECI)
- USACE P2 Program Office
- USACE Readiness Command (ENGLink Program Office)
- Various additional customers with single requirements

ITS Program Ongoing Projects

- HITS Technical Services Acquisition: $700M; $130M/Yr
- HITS Technical Services Acquisition: $100M; $ 20M/Yr (Restricted)
- HISS Professional Services Acquisition $ 85M; $ 15M/Yr (Restricted)
- HPC Annual Small Maintenance Contracts $16M/Yr
- APD Annual Software Renewals $10M/Yr
- AACOE Technical Services $10M; $ 2M/Yr
- Army CHESS Website Maintenance $10M; $ 1.5M/Yr
- Army PEO Missiles and Space Technical Services $ 7M/Yr
- CECI Annual Software Renewals and Technical Services $20M/Yr
- USACE P2 System O&M $ 2M/Yr
- ENGLink System O&M $ 2M/Yr
- Various Single Procurement customers $ 10 – 15M/Yr

Upcoming IDIQs

Facilities   RFP

- **Design- Build Facilities Repair and Renewal, $490 M**   **Q3 FY13**

- **High Performance Computing Integrated Support Services**,

$90M   **Q3 FY13**

- **Facility Reduction Program Services**, **$192M**   **Q3 FY13**

Energy

- **Energy Savings Performance Contract . $1.5 B**   **Q3 FY14**
- **Meter Data Management System, $10 M**   **Q3 FY13**
- **U.S. Army Energy Initiatives Task Force Support Services**, **$ 40M Q3 FY 13**

Electronic Technology

- **Utility Monitoring and Control Systems, $2.5 B**   **Q2 FY14**
- **Technical & Programmatic Support Services**, **$150 M**   **Q4 FY13**

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Questions?

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