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The Army Meter Data Management System (MDMS)

A Case Study
For Army MDMS Pilot

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US Army Engineering and Support Center,
Huntsville

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Agenda

1) MDMS Overview
2) MDMS Approach
3) Results of Pilot
4) Plans for Rollout

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MDMS
Overview

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MDMS
Help Army Meet Energy Goals

- MDMS will help the Army to comply with Federal Mandates
  - Energy Policy Act of 2005 (EPAct 2005)
  - Energy Independence and Security Act of 2007 (EISA 2007)
  - Other Executive Orders
- MDMS can measure progress of strategies such as AESIS and IMCP
  - Reduce energy and water consumption
  - Increase energy and water efficiency and modernize infrastructure
  - Increase use of new renewable and alternative energy
  - Assure access to sufficient energy supplies
  - Reduce adverse impacts on the environment

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What is MDMS?

- An enterprise system to track the Army's energy consumption worldwide
  - Track meter data from advanced utility meters in a central database (MDMS Enterprise)
  - Automate meter data collection on a secure network
  - Produce energy reports accessible via Army Engineering Knowledge Online (EKO) and MDMS Enterprise Portal
- Provide Army installations the ability to track utility commodities consumption at the facility level

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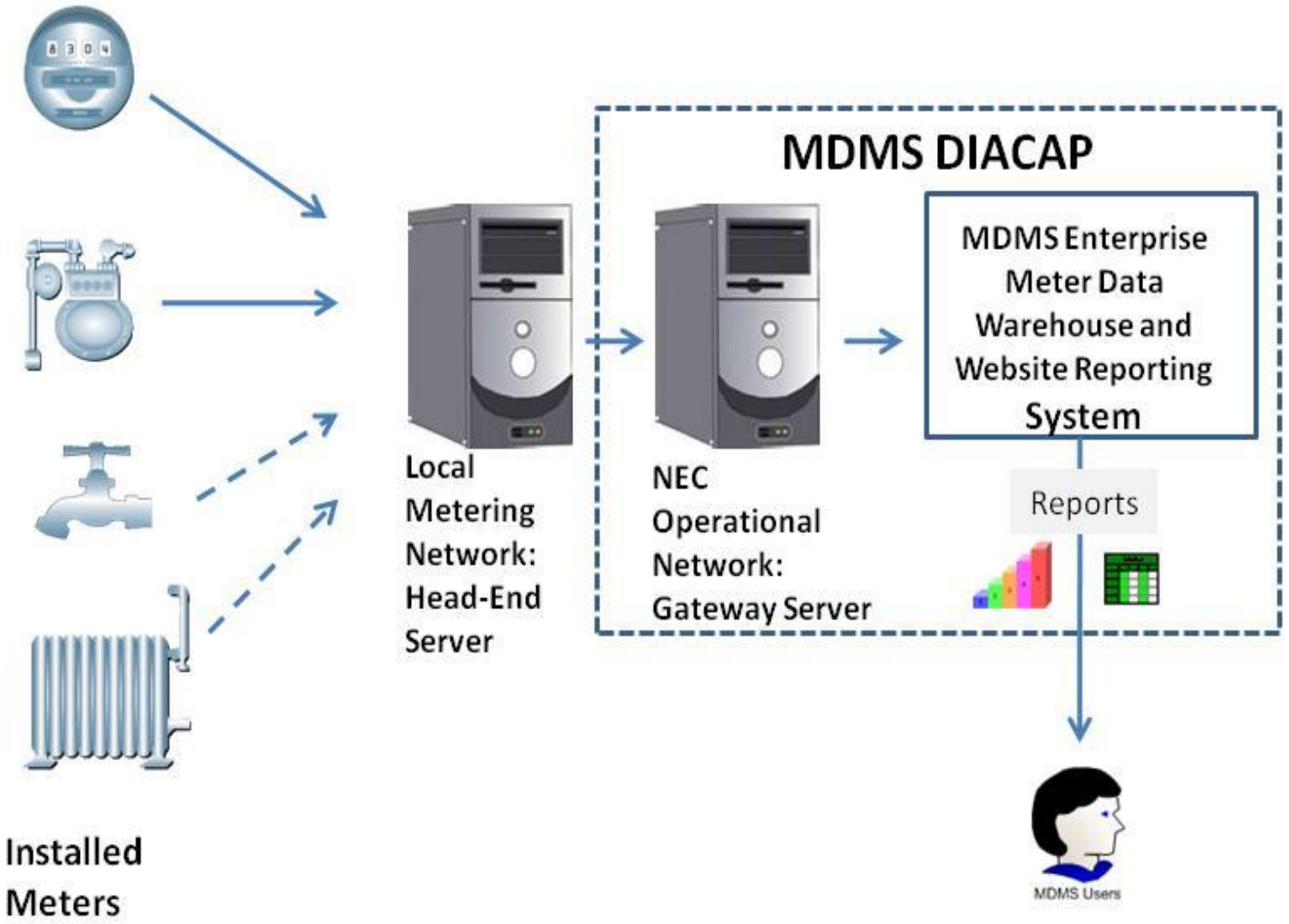
MDMS Data Flow



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MDMS
Approach

MDMS
Phased Approach

1) Phase 1 – Pilot study to prove the principle
2) Phase 2 – Roll out MDMS to 43 installations and improve reporting capability
3) Phase 3 – Maintain the system and roll out to more installations

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MDMS
Design Principles

- Keep it simple first
- Develop standards that capture the data you need.
- Expectations should match desired outcomes.
  - Products should not drive outcomes
  - Find the most common low-cost solution and promote it first and foremost.
- Short duration pilot studies
  - Like the rule for Real Estate about location -- Test, test, and test.
- One size doesn't fit all
  - No single solution will solve all the problems
  - Limit the solution paths to the most common solution sets

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MDMS Background

- Completed Phase 1 which had goals of:
  - Pilot at Forts Carson and Stewart
  - Receive information assurance accreditation and certification (DIACAP/CON)
  - Provide proof of concept securely moving data from installation to enterprise
  - Provide lessons learned for MDMS deployment
  - Deployed MDMS Pilot solution to West Point
- Beginning Phase 2
  - Planning fielding to more than 100 sites
  - Upgrading reporting capabilities

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MDMS
Results of Pilot

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MDMS
Results of Pilot

- Authority to Operate on DoD network
  - Received ATO from Army NETCOM effective 23 April 2010
  - Received CoN from Army NETCOM on 26 July 2010

- Over 117 meters reporting at 3 sites
  - 22 Electric , 0 NG Fort Stewart
  - 24 Electric, 8 NG Fort Carson
  - 45 Electric, 18 NG West Point

- 5 standard reports

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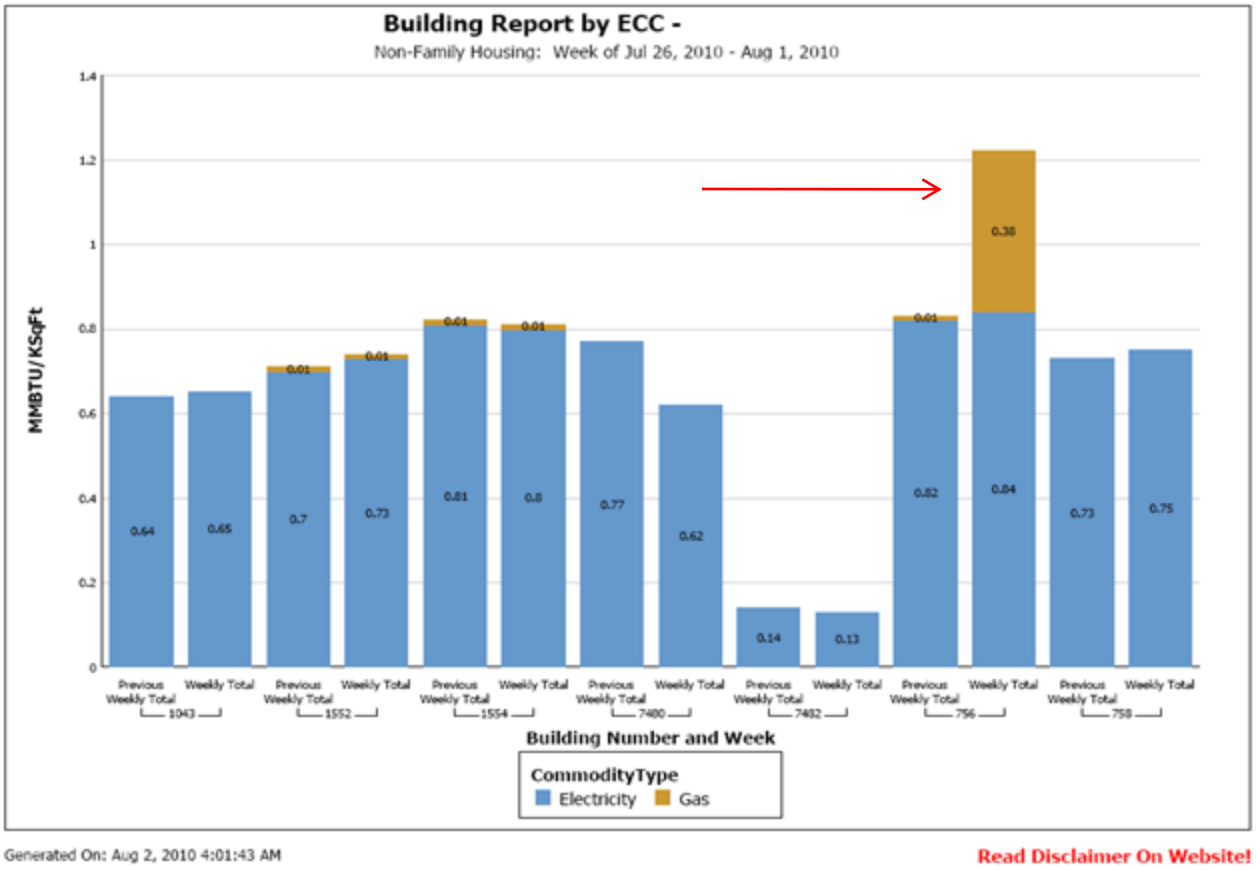
Pilot Findings



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Read Disclaimer On Website!

Exponential increase in Gas usage and is suspected to be a building controls failure

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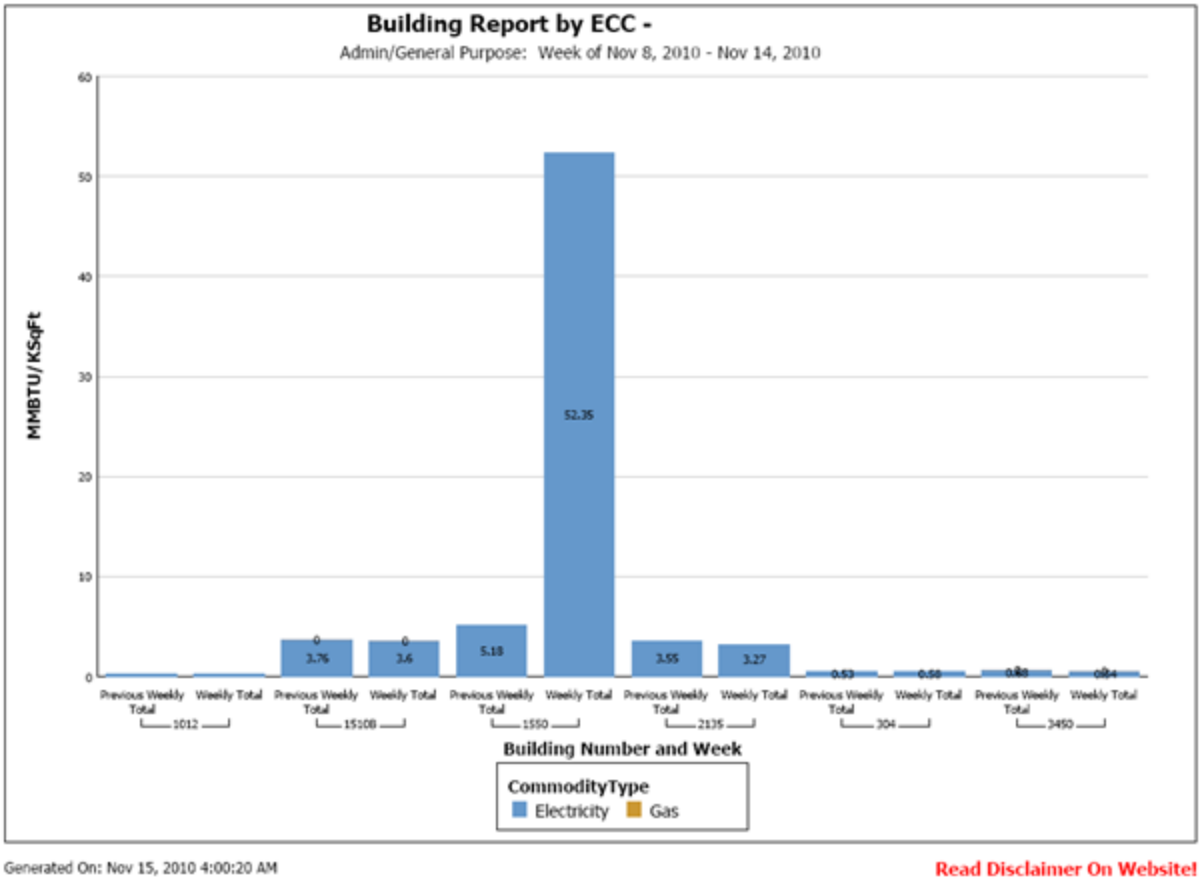
Pilot Findings



Identifies energy events for investigation

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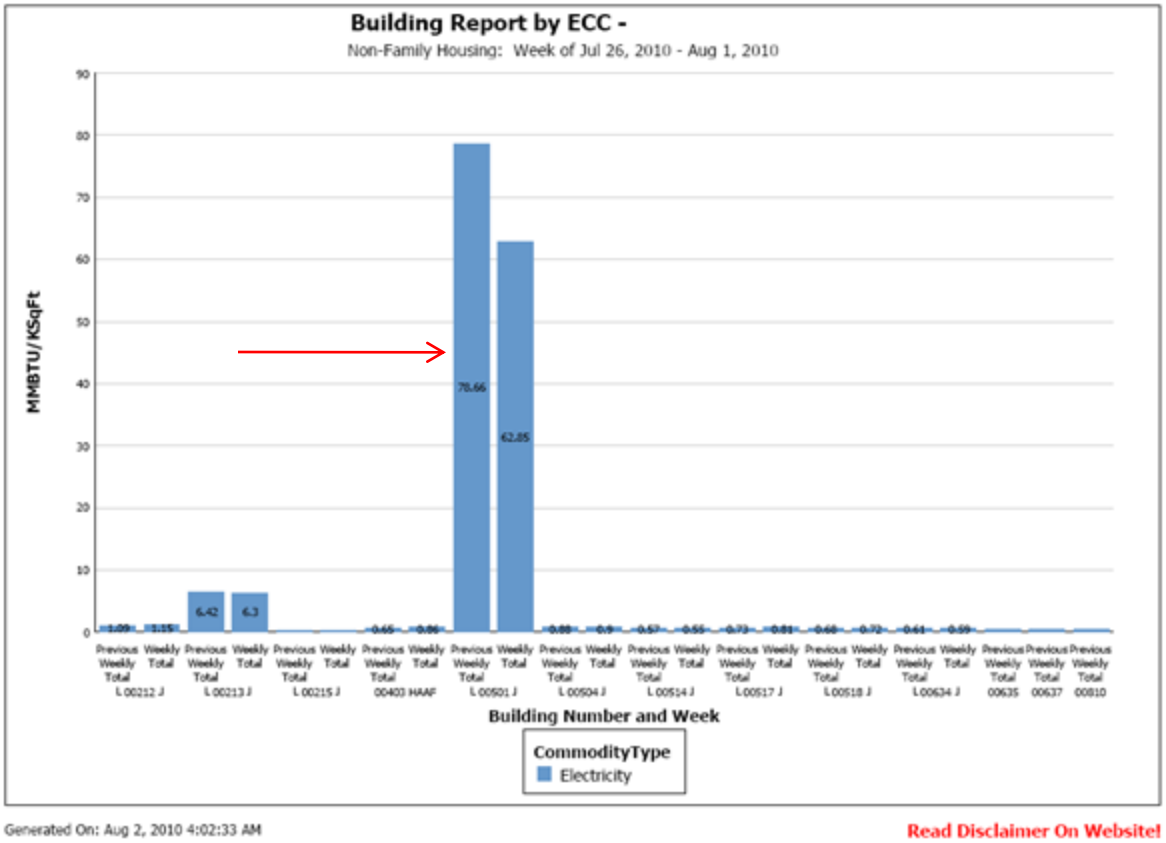
Pilot Findings



Identified error later determined to be incorrect meter multiplier (which has been corrected)

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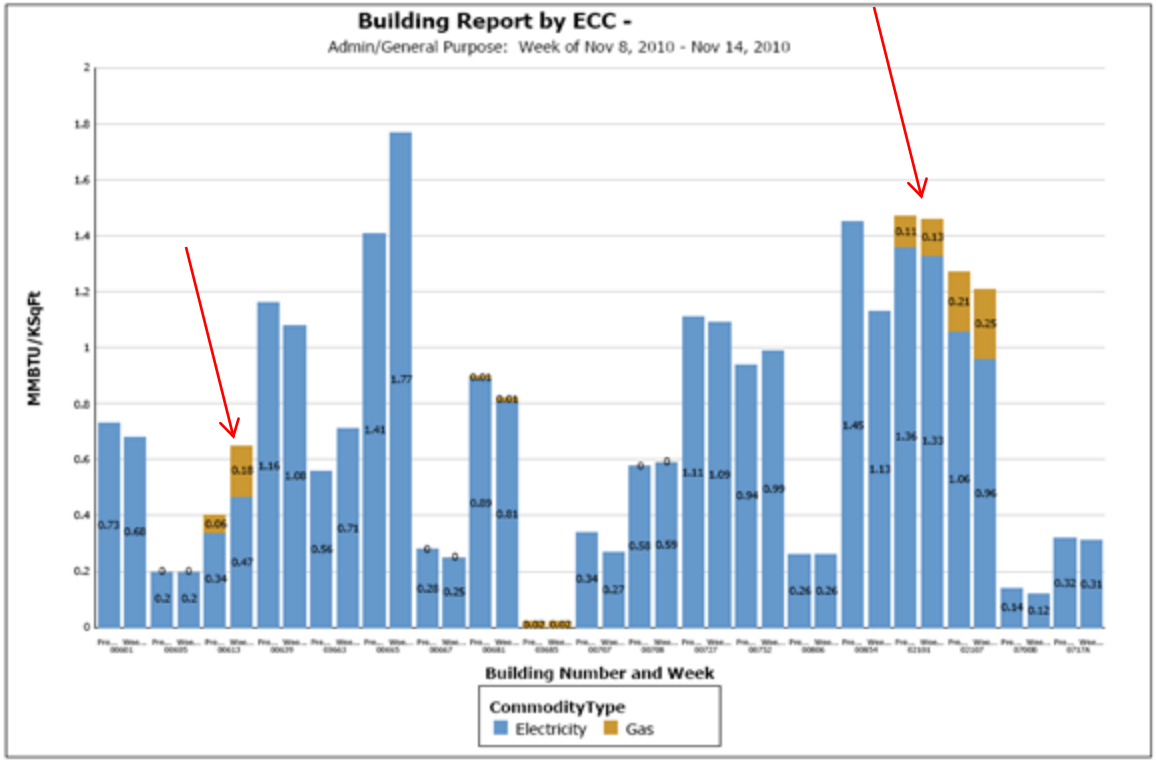
Pilot Findings



Identifies energy events for investigation

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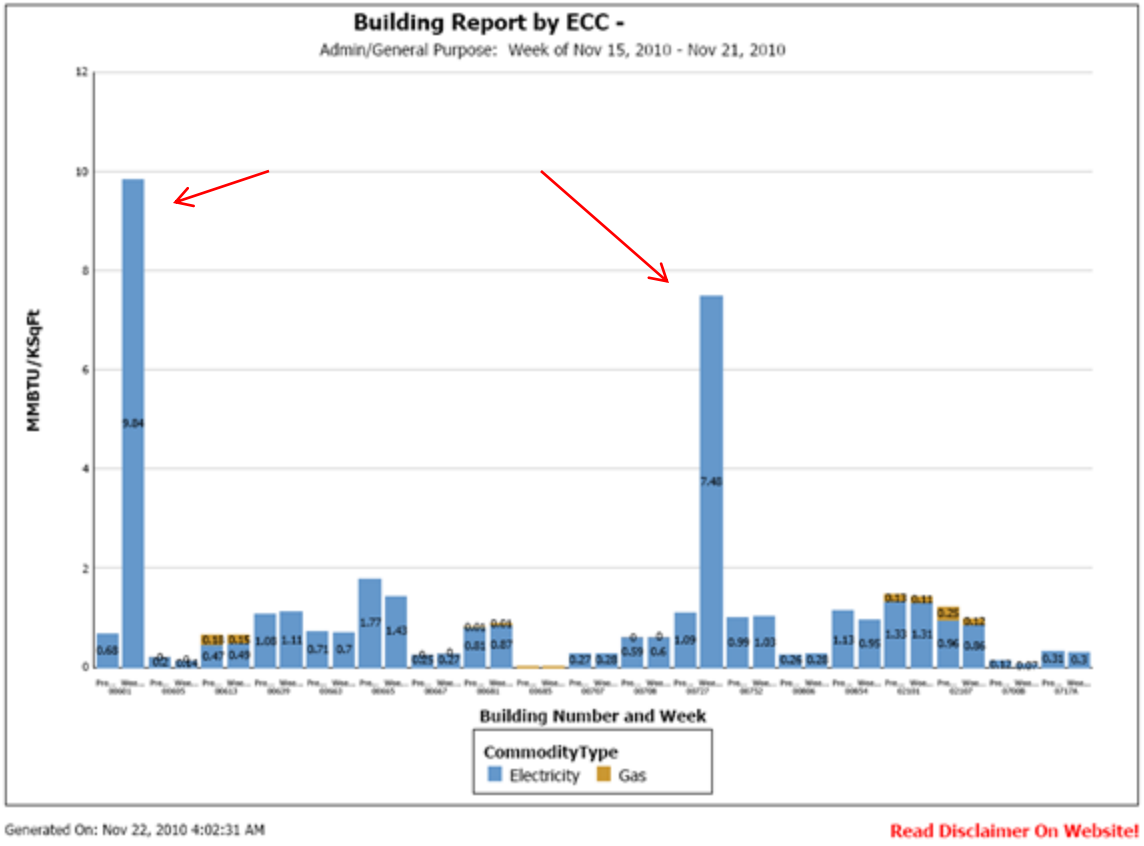
Pilot Findings



Identifies energy events for investigation

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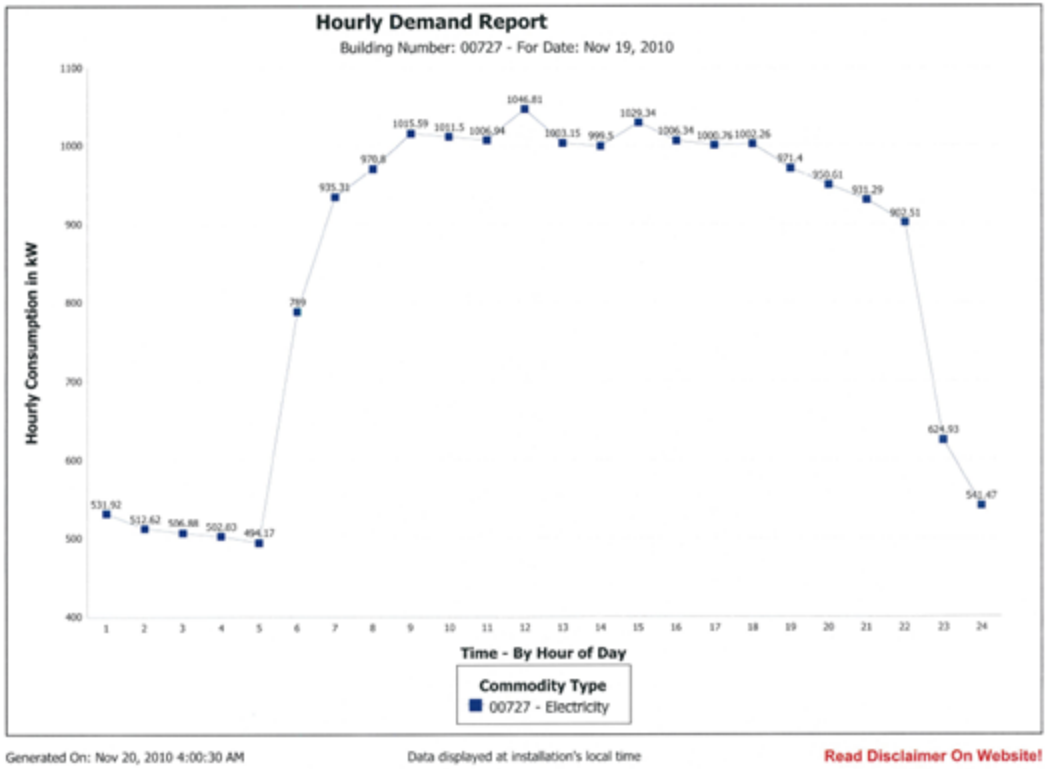
Pilot Findings



Tracking hourly demand enables load shedding strategies

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Pilot Findings

- Power factor irregularities that resulted in significant annual penalties
- Power quality concerns
- Interest in master metering
- Installations interested in MDMS and future capabilities
- Desire for more flexibility in reporting
- Challenge of interoperability with meter networks

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MDMS
Plans for Rollout

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MDMS Plans

- Roll out to 40 additional installations and update current 3 by 1 October 2011
- Upgrade interoperability to allow for additional data point capture
- Integrate real property data
- Support tenant billing
- Establish help desk and training
- Upgrade reporting module to include more functionality and report flexibility
  - 1 December enhanced report menu release
  - 1 October 2011 real property inventory interface (for automated facility data updates), automated tenant billing system and enhanced reporting

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U.S. ARMY METER DATA MANAGEMENT SYSTEM

- HQDA
  - IMCOM

Data range: Last 24 hours

Energy

Electric Consumption	Gas Consumption	Energy Consumption	Energy Intensity
150956.97 KWH	1317550 CCF	1849.74 MMBTU	123.68 MMBTU/KSF

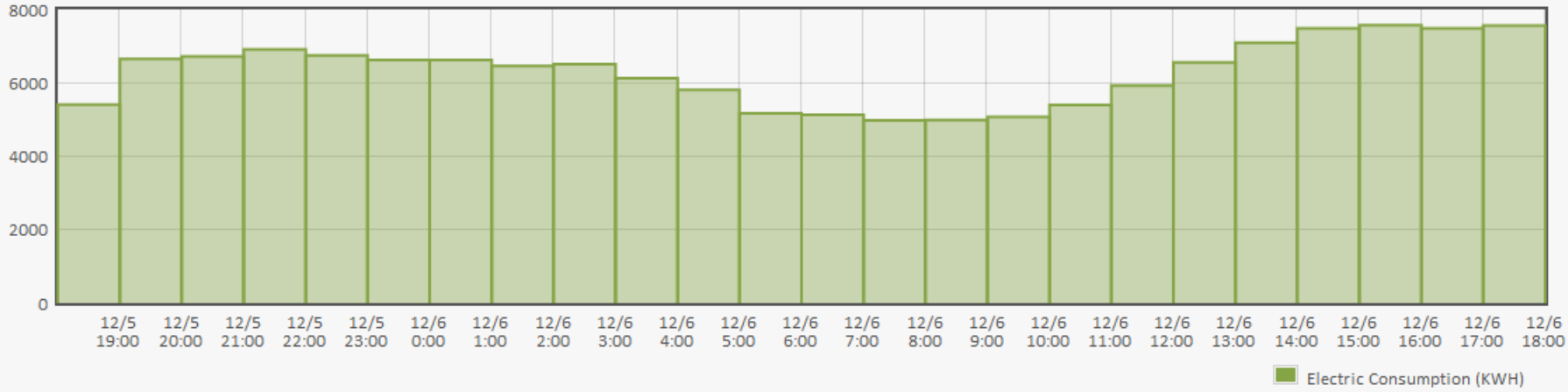
Facilities

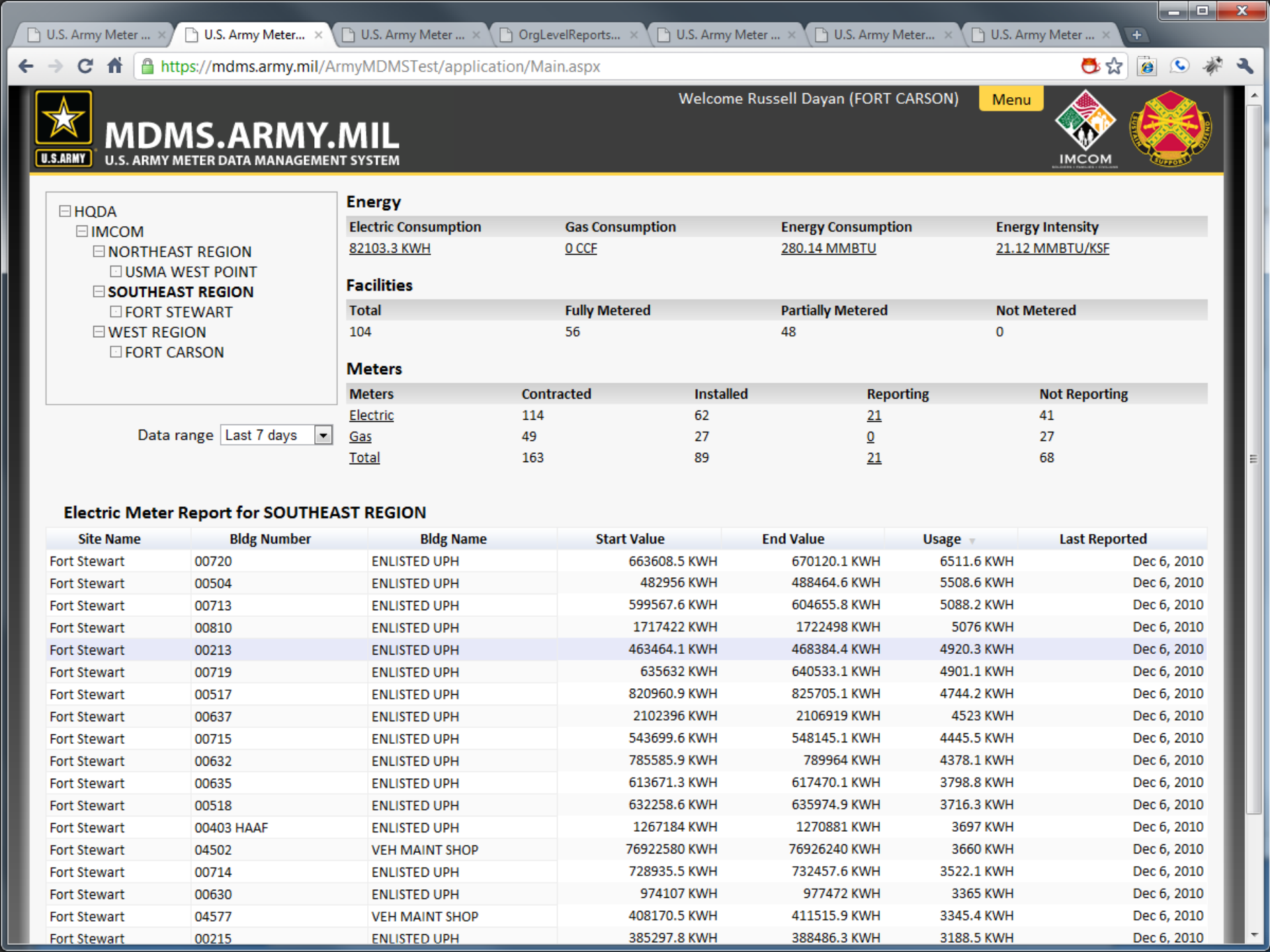
Total	Fully Metered	Partially Metered	Not Metered
224	176	48	0

Meters

Meters	Contracted	Installed	Reporting	Not Reporting
Electric	244	192	87	105
Gas	117	95	23	72
Total	361	287	110	177

Electric Consumption Report for HQDA

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https://mdms.army.mil/ArmyMDMSTest/application/Main.aspx
MDMS.ARMY.MIL
U.S. ARMY METER DATA MANAGEMENT SYSTEM
Welcome Russell Dayan (FORT CARSON)
Menu
IMCOM
HQDA
IMCOM
NORTHEAST REGION
USMA WEST POINT
SOUTHEAST REGION
FORT STEWART
WEST REGION
FORT CARSON
Data range
Last 7 days
Energy
Electric Consumption
Gas Consumption
Energy Consumption
Energy Intensity
82103.3 KWH
0 CCF
280.14 MMBTU
21.12 MMBTU/KSF
Facilities
Total
Fully Metered
Partially Metered
Not Metered
104
56
48
0
Meters
Meters
Contracted
Installed
Reporting
Not Reporting
Electric
114
62
21
41
Gas
49
27
0
27
Total
163
89
21
68
Electric Meter Report for SOUTHEAST REGION
Site Name
Bldg Number
Bldg Name
Start Value
End Value
Usage
Last Reported
Fort Stewart
00720
ENLISTED UPH
663608.5 KWH
670120.1 KWH
6511.6 KWH
Dec 6, 2010
Fort Stewart
00504
ENLISTED UPH
482956 KWH
488464.6 KWH
5508.6 KWH
Dec 6, 2010
Fort Stewart
00713
ENLISTED UPH
599567.6 KWH
604655.8 KWH
5088.2 KWH
Dec 6, 2010
Fort Stewart
00810
ENLISTED UPH
1717422 KWH
1722498 KWH
5076 KWH
Dec 6, 2010
Fort Stewart
00213
ENLISTED UPH
463464.1 KWH
468384.4 KWH
4920.3 KWH
Dec 6, 2010
Fort Stewart
00719
ENLISTED UPH
635632 KWH
640533.1 KWH
4901.1 KWH
Dec 6, 2010
Fort Stewart
00517
ENLISTED UPH
820960.9 KWH
825705.1 KWH
4744.2 KWH
Dec 6, 2010
Fort Stewart
00637
ENLISTED UPH
2102396 KWH
2106919 KWH
4523 KWH
Dec 6, 2010
Fort Stewart
00715
ENLISTED UPH
543699.6 KWH
548145.1 KWH
4445.5 KWH
Dec 6, 2010
Fort Stewart
00632
ENLISTED UPH
785585.9 KWH
789964 KWH
4378.1 KWH
Dec 6, 2010
Fort Stewart
00635
ENLISTED UPH
613671.3 KWH
617470.1 KWH
3798.8 KWH
Dec 6, 2010
Fort Stewart
00518
ENLISTED UPH
632258.6 KWH
635974.9 KWH
3716.3 KWH
Dec 6, 2010
Fort Stewart
00403 HAAF
ENLISTED UPH
1267184 KWH
1270881 KWH
3697 KWH
Dec 6, 2010
Fort Stewart
04502
VEH MAINT SHOP
76922580 KWH
76926240 KWH
3660 KWH
Dec 6, 2010
Fort Stewart
00714
ENLISTED UPH
728935.5 KWH
732457.6 KWH
3522.1 KWH
Dec 6, 2010
Fort Stewart
00630
ENLISTED UPH
974107 KWH
977472 KWH
3365 KWH
Dec 6, 2010
Fort Stewart
04577
VEH MAINT SHOP
408170.5 KWH
411515.9 KWH
3345.4 KWH
Dec 6, 2010
Fort Stewart
00215
ENLISTED UPH
385297.8 KWH
388486.3 KWH
3188.5 KWH
Dec 6, 2010

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Welcome Russell Dayan (FORT CARSON) Menu

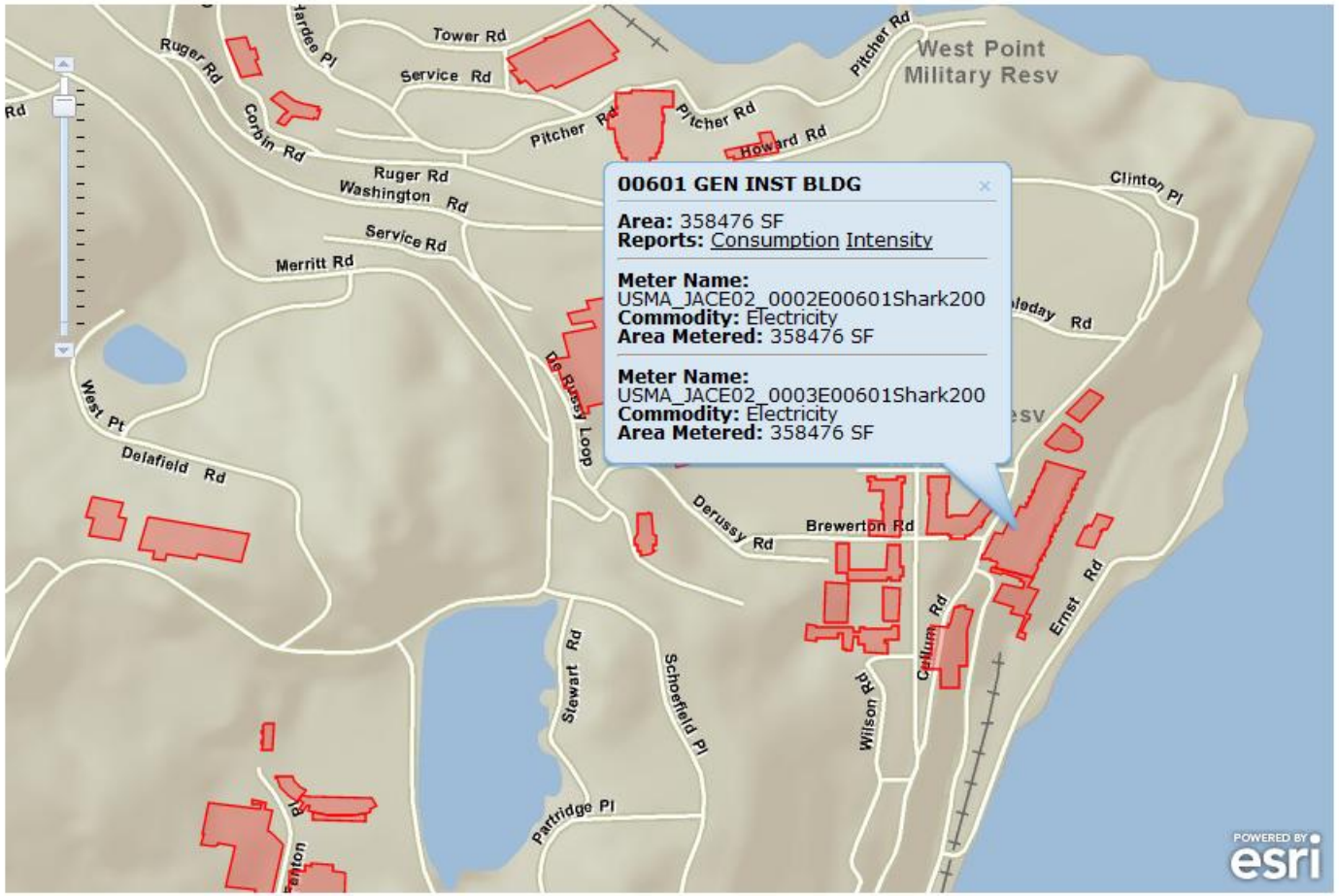
IMCOM

Current site: West Point

West Point | Change site

Buildings: 45 | Shown: 27

- 02107 ADMIN GEN PURP
- 00681 ADMIN GEN PURP
- 00626 ADMIN GEN PURP
- 00605 ADMIN GEN PURP
- 02113 ARMY LODGING
- 00674 ARMY LODGING
- 00685 BAND TRAIN BLDG
- 00655 CEREMONIAL HALL
- 00722 CHAPEL
- 01200 COMMISSARY
- 0705B DEPENDENT SCH
- 00751 ENLISTED UPH
- 00740 ENLISTED UPH
- 00738 ENLISTED UPH
- 00735 ENLISTED UPH
- 00624 ENLISTED UPH
- 00620 ENLISTED UPH
- 00602 ENLISTED UPH
- 01204 EXCH MAIN STORE
- 00753 GEN INST BLDG
- 00752 GEN INST BLDG
- 00639 GEN INST BLDG
- 00601 GEN INST BLDG
- 00606 HEALTH CLINIC
- 00714 ID ICE RINK
- 02101 INFO SYS FAC
- 00845 LAUNDRY/DRY CLN
- 00687 LTH/TEX/CLTH PT
- 00900 MED CTR/HOSP
- 02110 MUSEUM
- 00603 OFF OPEN DINING
- 0717A PE TNG BUILDING
- 0700C PE TNG BUILDING
- 0700B PE TNG BUILDING



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MDMS
Roll-out Challenges

- DIACAP/ATO
  - Must have top level buy-in and agreements
  - UMCS and Meter networks offer a new challenge
- Interoperability with meters/head-end servers
  - Variability in equipment, software, configurations and installers
- Sustainability planning
  - “After the contract period ends, who will maintain software, servers, and other equipment?”

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MDMS
Outcomes

- Standardization of meter data across Army installations
  - Will result in greater interoperability
- Identify best and worst facilities
- Must pay for itself
- Conserve energy

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Army MDMS Contacts

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