

MDMS TRAINING WEBINAR

6 SEPTEMBER 2017

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September 2017

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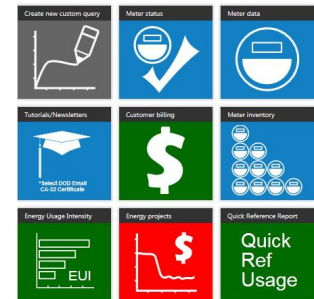


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AGENDA

- Update on MDMS Video Tutorials
- Mission
- Benefits of Meter Data
- Inputs & Outputs
- Data Reliability Challenges
- Two Methods of Data Capture
- MDMS Report Best Uses



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MDMS Video Training Tutorials

Due to Defense Collaboration Services (DCS) connection issues experienced during previous webinar sessions, the MDMS Project Team re-evaluated the approach for conducting MDMS training webinars.

Training videos have been recorded and uploaded to the milTube web site for viewing by the MDMS user community.

Below are the links for the tutorials. Be sure to choose your DOD email certificate associated with your CAC when accessing the site.

- Meter Data Management System (MDMS) - Quick Reference Usage Report (QRUR):
<https://www.milsuite.mil/video/watch/video/17036>
- Meter Data Management System (MDMS) - Army Meter Service Desk (AMSD) Website:
<https://www.milsuite.mil/video/watch/video/17033>
- Meter Data Management System (MDMS) - Energy Use Intensity (EUI) Report:
<https://www.milsuite.mil/video/watch/video/17032>
- Meter Data Management System (MDMS) - Meter Status Roll-Up (MSRU):
<https://www.milsuite.mil/video/watch/video/16969>



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METER DATA MANAGEMENT SYSTEM

MISSION:

- ***Prioritize*** buildings for action
- ***Validate*** effectiveness of actions taken
- ***Motivate*** others to do their part
- ***Achieve*** energy savings



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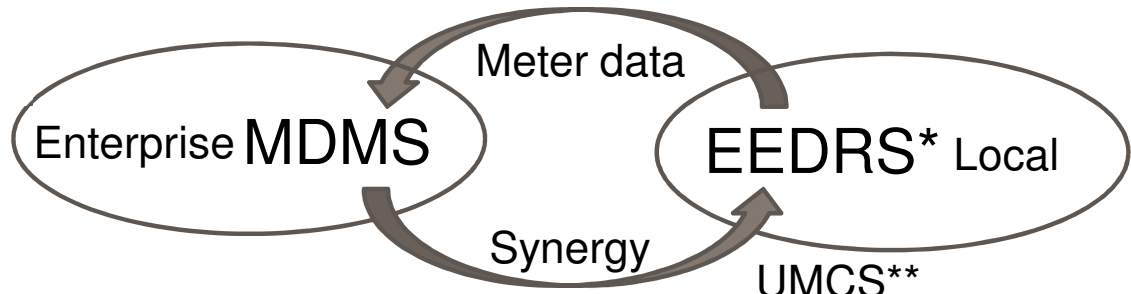


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BENEFITS OF METER DATA



Telescope



Microscope

- Prioritize
- Validate
- Motivate

- UMCS**
- Optimize building system efficiency
 - Reduce peak demand (controls)
 - Diagnose equipment problems

Reduce Energy Cost

*Enterprise Energy Data Reporting System

**Utility Monitoring and Control Systems

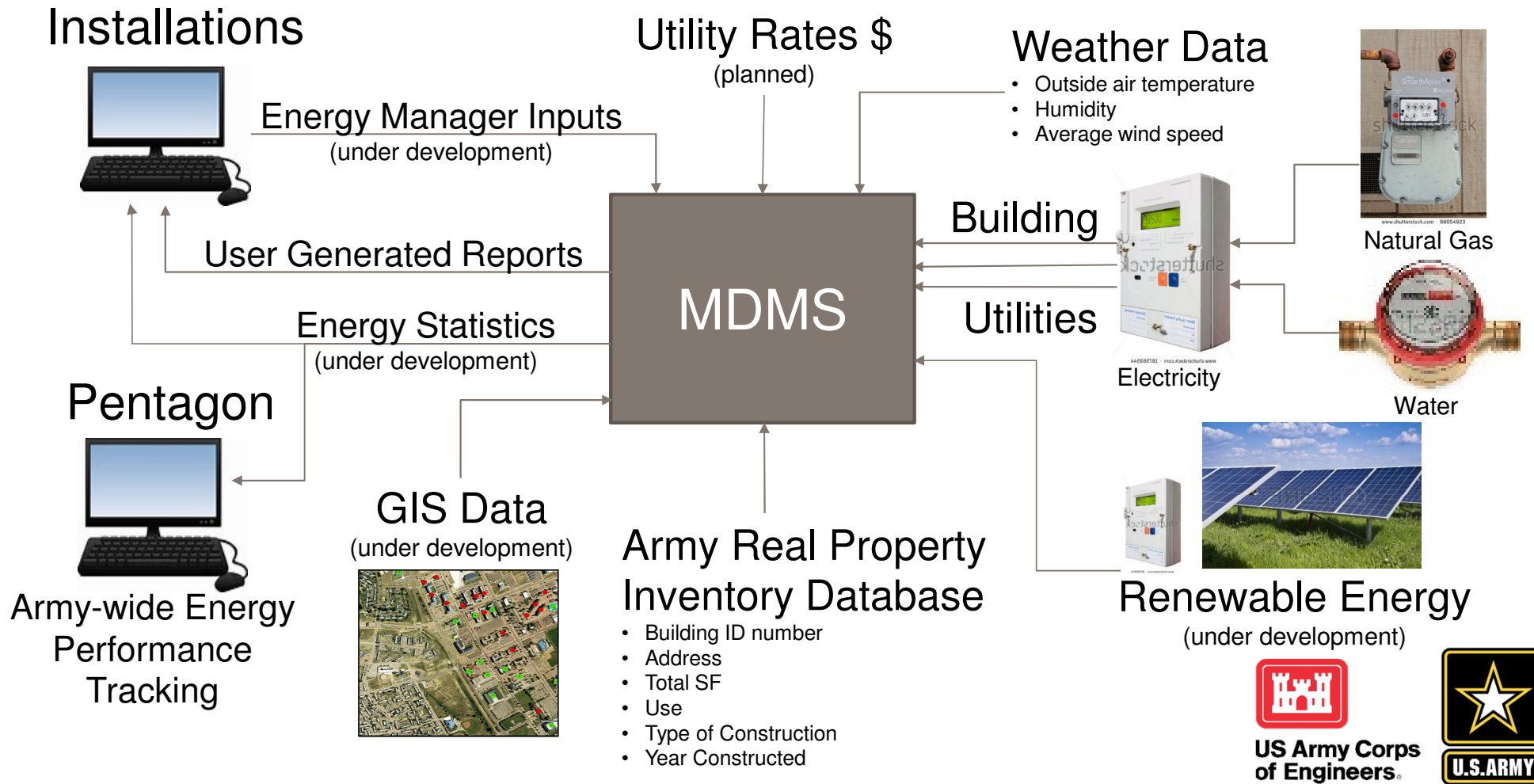


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INPUTS AND OUTPUTS (I/O)



DATA RELIABILITY CHALLENGES

- Network outages (data gaps)
- Erroneous usage spikes (greatly exaggerates usage)
- Stuck meters (falsely reporting zero usage)
- Wrong meter multipliers (over or under reports usage)



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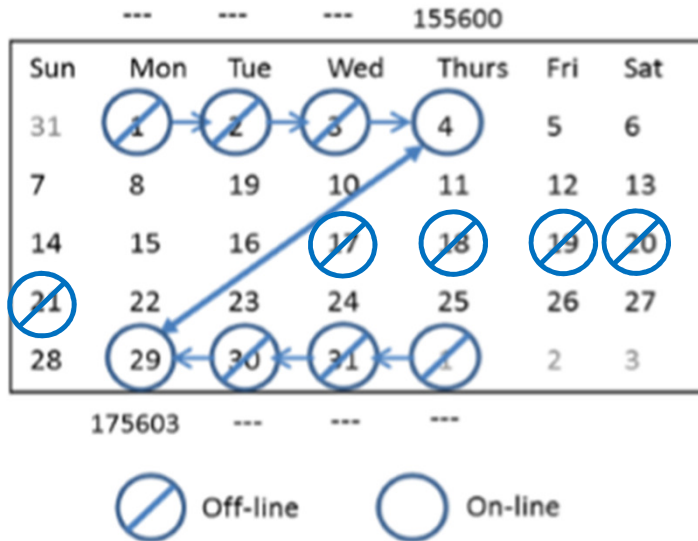


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ENERGY AND WATER USAGE-- TWO METHODS OF CAPTURE

Percent duration capture

- Takes advantage of meters continuing to record usage during network outages



Usage: 175603 – 155600 = 20003 KWH
 Percent of time captured: $(29 - 4)/31 = 80.6\%$

Compile all 15-minute interval data

- Includes data gaps caused by network outages

12/1/17 12:00	--	12/4/17 12:00	155600	12/17/17 12:00	--
12/1/17 12:15	--	12/4/17 12:15	155615	12/17/17 12:15	--
12/1/17 12:30	--	12/4/17 12:30	155625	12/17/17 12:30	--
12/1/17 12:45	--	12/4/17 12:45	155640	12/17/17 12:45	--
12/1/17 1:00	--	12/4/17 1:00	155656	12/17/17 1:00	--
12/1/17 1:15	--	12/4/17 1:15	155696	12/17/17 1:15	--
12/1/17 1:30	--	12/4/17 1:30	155725	12/17/17 1:30	--
12/1/17 1:45	--	12/4/17 1:45	155745	12/17/17 1:45	--
12/1/17 2:00	--	12/4/17 2:00	155765	12/17/17 2:00	--
12/1/17 2:15	--	12/4/17 2:15	155785	12/17/17 2:15	--
12/1/17 2:30	--	12/4/17 2:30	155823	12/17/17 2:30	--
12/1/17 2:45	--	12/4/17 2:45	155846	12/17/17 2:45	--
12/1/17 3:00	--	12/4/17 3:00	155899	12/17/17 3:00	--
12/1/17 3:15	--	12/4/17 3:15	155967	12/17/17 3:15	--
12/1/17 3:30	--	12/4/17 3:30	155988	12/17/17 3:30	--
12/1/17 3:45	--	12/4/17 3:45	--	12/17/17 3:45	--
12/1/17 4:00	--	12/4/17 4:00	--	12/17/17 4:00	--
12/1/17 4:15	--	12/4/17 4:15	--	12/17/17 4:15	--
12/1/17 4:30	--	12/4/17 4:30	--	12/17/17 4:30	--
12/1/17 4:45	--	12/4/17 4:45	--	12/17/17 4:45	--

Total no.15-minute interval data received: 1920
 Total no. of 15-minute intervals in month: 2976
Reporting Consistency: $1920 / 2976 = 64.5\%$



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MDMS REPORTS – BEST USES

(not all inclusive)

Report	Description	Best Uses
Quick Reference Usage Report (QRUR)	Past month(s) consumption by building and commodity for selected site(s)	<ul style="list-style-type: none">• Tenant billing. Monthly trending• Compare consumption before and after an energy project
Energy Use Intensity (EUI) by Category Code (CATCODE)	Calculates energy consumption per SF and ranks buildings from highest to lowest EUI according to a selected site and facility use (CATCODE) Shows median EUI for all facilities having that CATCODE and located within the same climate zone as the selected site	<ul style="list-style-type: none">• Prioritize buildings for energy audits and energy project development• Analyze seasonal performance• Detect faulty meter data
Custom Query	Provides time of use graph for a selected building with drill down capability to smallest available time interval	<ul style="list-style-type: none">• Compare day-night and weekday-weekend offset• Peak demand and time frames
Meter Status Details	Identifies off-line meters and their last reporting date/time	<ul style="list-style-type: none">• Motivate and prioritize network sustainment actions by others



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US Army Meter Data Management System

Quick Reference Usage Report (Percent Duration Capture)

View report options

Export to Excel

Sufficient to extrapolate to 100%?

Building Number	Building Name	SqFt	Month/Year	Commodity	Usage	Units	% Month Reported
4509	ENLISTED UPH	38080	SEP 2016	Electricity	28335.13	kWh	100
4509	ENLISTED UPH	38080	AUG 2016	Electricity	32927.75	kWh	100
456	ELECTRN EQ BLDG	48499	SEP 2016	Electricity	27468.78	kWh	40
456	ELECTRN EQ BLDG	48499	AUG 2016	Electricity	46461.01	kWh	76
459	HUMAN ENG LAB	69469	SEP 2016	Electricity	Offline	kWh	0
459	HUMAN ENG LAB	69469	AUG 2016	Electricity	Offline	kWh	0
4600	RODMAN MATERIALS RSCH LAB	344021	SEP 2016	Electricity	1339033.00	kWh	98

Missing one day

ENERGY USE INTENSITY (EUI)

Annual Building EUI September 2015 - August 2016

FORT MCCOY

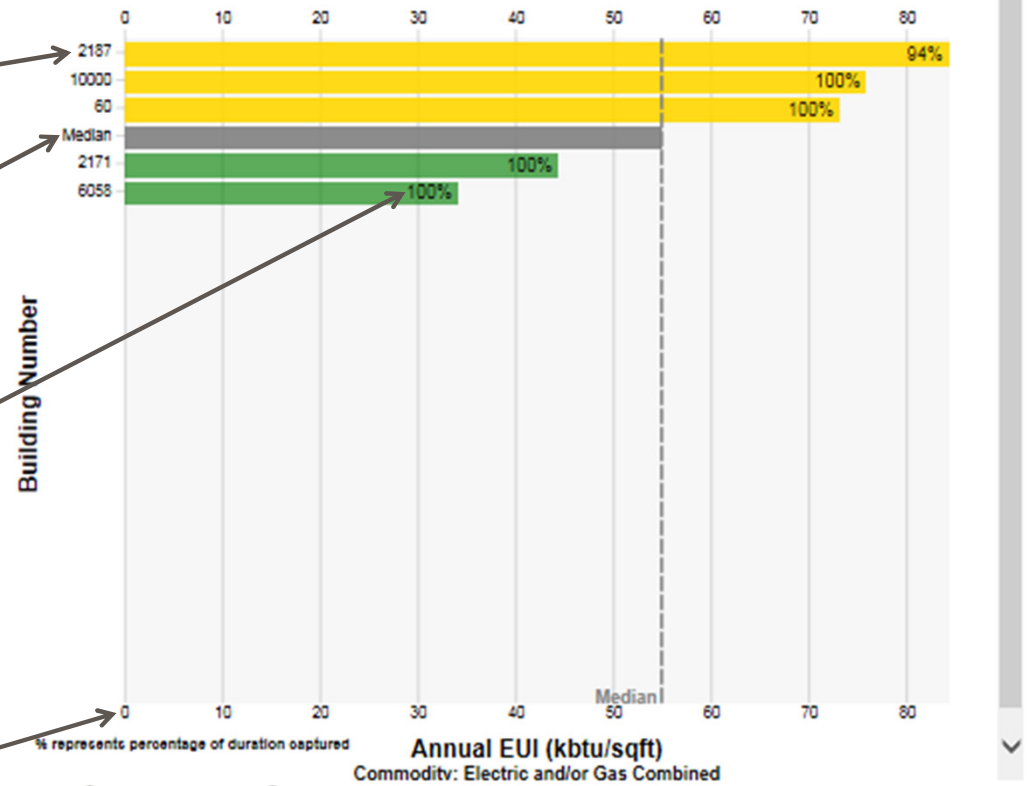
CAT CODE 61050 ADMIN GEN , Climate Zone 6A

Y- axis shows the building ID numbers within the selected installation and facility use CATCODE

The median EUI for the group is depicted in grey.

Percent of the report duration for which usage was captured

X- axis shows the EUI in thousand British thermal units per square foot (kbtu).



Electricity and Natural Gas usage converted to Btu

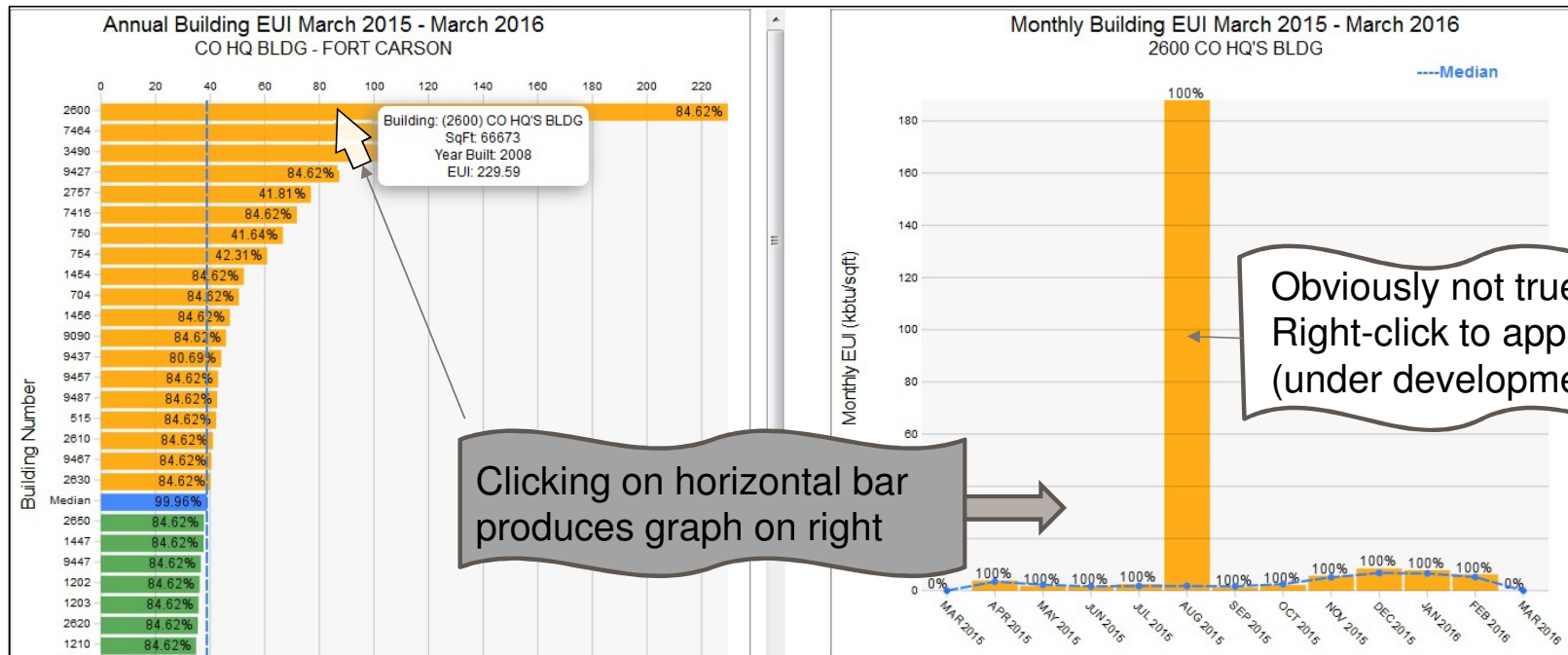


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FAULTY METER DATA DETECTION



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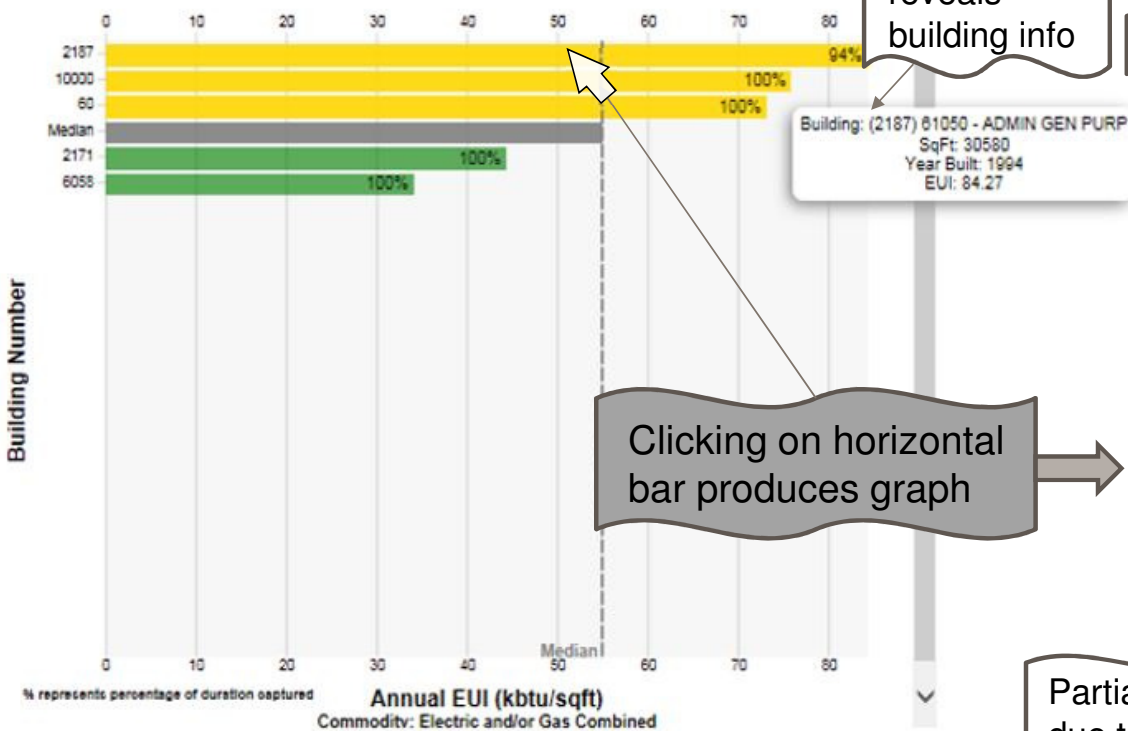


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FINDING WORST IN CLASS FACILITIES

Annual Building EUI September 2015 - August 2016

CAT CODE 61050 ADMIN GEN , Climate Zone 6A



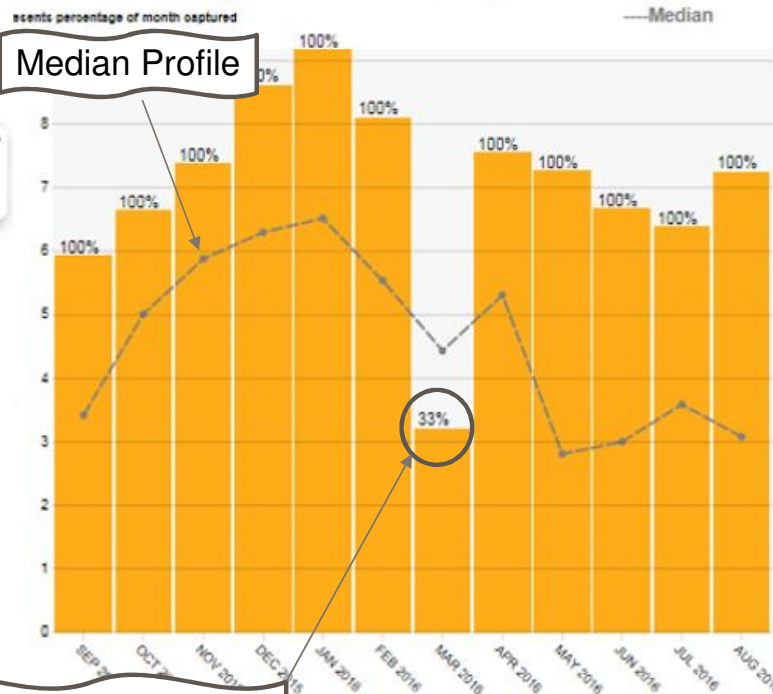
Mouse hover reveals building info

Building: (2187) 61050 - ADMIN GEN PURP
 SqFt: 30580
 Year Built: 1994
 EUI: 84.27

Clicking on horizontal bar produces graph

Monthly Building EUI September 2015 - August 2016

Bldg 2187 61050 - ADMIN GEN PURP, Built Date: 1994



Median Profile

Partial month capture due to network outage



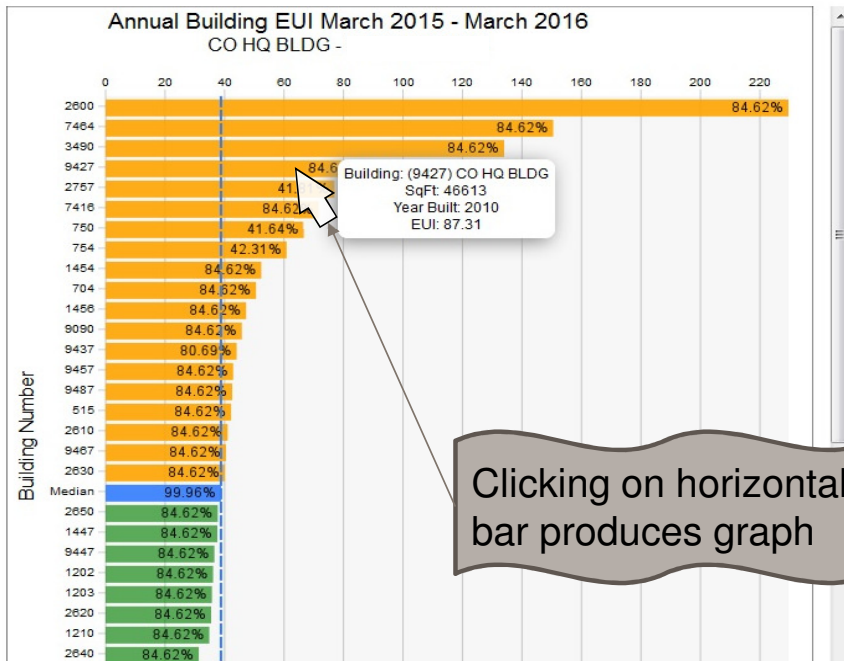
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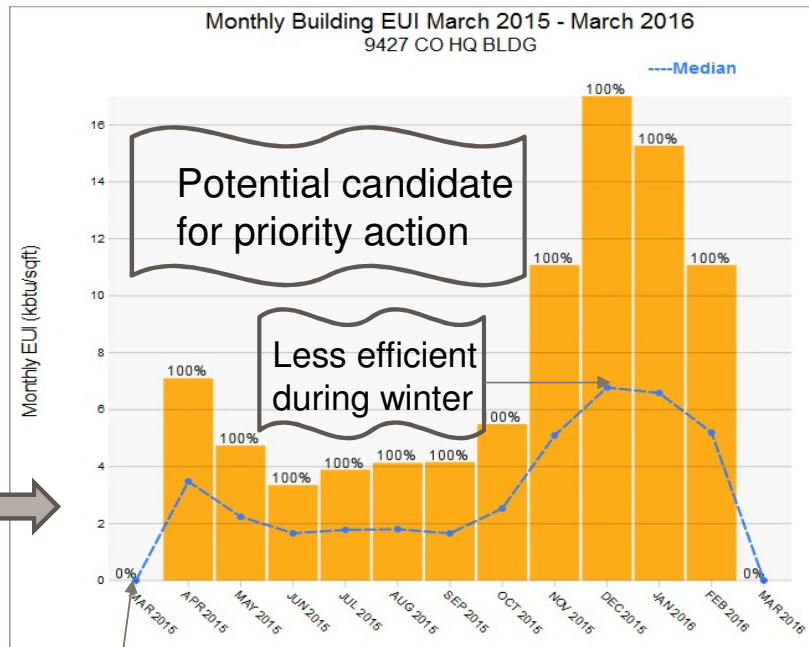
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ANOTHER WORST IN CLASS EXAMPLE

Energy Use Intensity (EUI)



Clicking on horizontal bar produces graph



Potential candidate for priority action

Less efficient during winter

Target EUI

View report options



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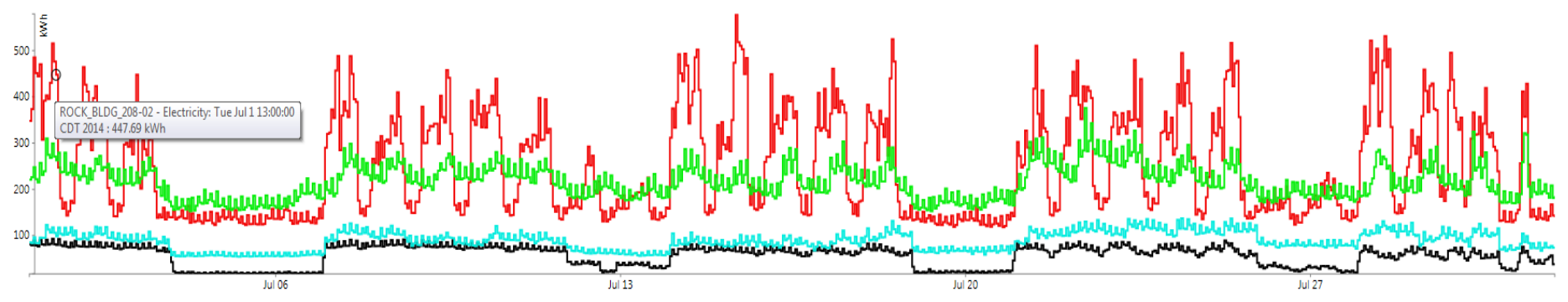


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CUSTOM QUERY

Title

Query Date Range
 07/01/2014 00:00 - 07/31/2014 23:59



Your dashboard queries

[Save query](#) [Export to Excel](#)

Data series displayed in query

Data Series	Type	Units	Data Object	# of data points	Line Style
Remove	Electricity	kWh	ROCK_BLDG_208-01	744	Solid <input type="text" value="Solid"/>
Remove	Electricity	kWh	ROCK_BLDG_208-02	744	Solid <input type="text" value="Solid"/>
Remove	Electricity	kWh	ROCK_BLDG_208-03	744	Solid <input type="text" value="Solid"/>
Remove	Electricity	kWh	ROCK_BLDG_208-04	744	Solid <input type="text" value="Solid"/>

US Army Meter Data Management System

Meter status details Export status roll-up to Excel Go to Gateway/Smart Server Meters

Meter status roll-up

Organization	All meters	Electric meters	Gas meters	Water meters	Metered buildings	Metered SF	Total meters assigned to buildings	Total meters assigned to site only	Most recent	EEDRS/M status
Gateway/Smart Sever Meters										
[+] HQDA	11500 of 11500 current	8000 of 8000 current	2000 of 2000 current	1500 of 1500	7000	20000000	11000	500		
[+] IMCOM	10000 of 10000 current	6000 of 6000 current	2000 of 2000 current	500 of 500 current	1500	15000000	8500	1500		
[+] ATLANTIC REGION	5000 of 5000 current	2900 of 2900 current	2000 of 2000 current	60 of 60 current	1500	10000000	5000	500		
[+] ABERDEEN PROVING GROUND	200 of 200 current	200 of 200 current	0 of 0 current	0 of 0 current	200	1000000	200	0	10/19/2016 11:15:00 AM	MDMS EEDR operati
[+] ABERDEEN PROVING GROUND	200 of 200 current	200 of 200 current	0 of 0 current	0 of 0 current	200	1000000	200	0	10/19/2016 11:15:00 AM	MDMS EEDR operati

Last 30 Days Reporting Consistency	Last 60 Days Reporting Consistency
60%	60%
52%	70%
37%	63%
37%	63%
90%	90%
90%	90%

Site level will now be selectable to transition to a new screen for building/meter drilldown

Meter reporting consistency is now shown for last 30 and 60 days

Notional – Not Real Data

US Army Meter Data Management System

Meter status

Meter status details Export status roll-up to Excel

Go to UP Meters

Site: ABERDEEN PROVING GROUND

Building	Meter	Commodity	Most recent	30 Days Reporting Consistency	Last 60 Days Reporting Consistency
500 HATCHER ROAD	APGM_E500.WEM-01	Electricity	08/02/2016 11:15:00 AM	25%	50%
600 AC MAINT HGR	APGM_E600.WEM-01	Electricity	10/16/2016 09:15:00 AM	50%	80%
700 RODMAN LAB	APGM_E700.WEM-01	Electricity	10/15/2016 08:00:00 AM	70%	60%
800 BERNARD LAB	APGM_E800.WEM-01	Electricity	10/20/2016 03:00:00 PM	80%	95%

Sortable column for Most recent

Most recent color scheme thresholds:
 Green: Last Reported ≤ 36 hours
 Yellow: Last Reported > 36 hours but < 1 week
 Red: Last Reported > 1 week
 Worst is First: The meter that has not reported for the longest time is on top of the list to give priority.

Notional – Not Real Data

Questions?

Create new custom query 	Meter status 	Meter data
Tutorials/Newsletters <small>*Select DOD Email CA-32 Certificate</small>	Customer billing 	Meter inventory
Energy Usage Intensity EUI	Energy projects 	Quick Reference Report



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