

VOLUME 8, ISSUE 5 ~ JUNE — JULY 2023

FROM THE PROGRAM MANAGER

Welcome to our June - July 2023 issue of the *Meter Data Management System Update (MDMS),* designed to keep you informed on the growth and latest developments of the Meter Data Management System and the Army Metering Program.

Our first article focuses on two MDMS reports that you can use to retrieve your consumption numbers for your AEWRS reporting. The Army Meter Service Desk and the MDMS Outreach Team continue to get quite a few requests to assist in finding this information in MDMS. We thought it would be useful to cover the two reports here so that you can refer back to this article when the next AEWRS reporting period approaches.

steps covered in many of our one-onone sessions between the MDMS Outreach Team and installations to identify buildings for potential audits and/or energy projects. These sessions prove very beneficial to the installations and give them a list of specific targets for either maintenance follow-up or with potential energy projects associated projected savings for an Energy Conservation Measure (ECM), as well as the supportable constructions costs for a 20-year contract for 10, 20, and 30% savings.

As always, our mission is to improve the MDMS experience for end users. Your input is valuable, and we welcome your feedback via the Army Meter Service Desk (AMSD) at: <u>cehncarmy-meter-help@usace.army.mil</u>



From the Program 1 Manager

Retrieving MDMS 1-2 Consumption Data for AEWRS

Using MDMS for Energy 2-5 Audit/Project Planning

The second article briefs the analysis

RETRIEVING MDMS CONSUMPTION DATA FOR AEWRS

The MDMS Outreach Team and the AMSD continue to receive requests to retrieve MDMS consumption data for AEWRS reporting. Here are some simple steps to get your MDMS data for AEWRS. Two great reporting options are the Custom Usage Report and the Installation Usage Report. We will provide steps for running both reports here and you can choose which works best for your AEWRS reporting efforts.

The Custom Usage Report is on the Energy Management page under the sub-menu Usage Summary.

Custom Usage		
Organization	Commodity	Date Range
	 Electric 	[Start DateTime] - [End DateTime] 🚟
Select Command(s)	○ Gas	
	○ Electric & Gas	
Select Region	○ Water	Generate Report
	○ Steam	
Select Installation	Duration	
Select Site	Year	
	○ Quarter	
Select Building	○ Month	
Select Custom Group	○ Custom	

Here are the steps for running this report:

- 1. For **Organization**, select the **Select Installation** button.
- 2. When the **Select Installation** selection dialog appears, search for and click the **Add** button for your installation. (*Continued on pg. 2*)



RETRIEVING MDMS CONSUMPTION DATA FOR AEWRS (CONT. FROM PG. 1)

- 3. Under Commodity, select one of the commodities.
- 4. For Duration, select Quarter.
- 5. Then select the calendar icon on the **Date Range** and it defaults to the last quarter. You can change this if needed.
- 6. Then, select the Generate Report button.

This gives you the below graph, with the Total Usage at the bottom.



Then, just rerun the report for your other commodities. The report information can also be saved as an image file or exported to Excel.

The second report, the Installation Usage Report, is also found on the Energy Management page under the Usage Summary sub-menu and just below the Custom Usage Report.

Installation Usage Report		
Organization	Commodity	Date Range
□ HQDA	All	July 2022 - June 2023 📰
Select Command	Electric only Gas only	
Select Region	 Water only Steam only 	
Select Installation	Federal vs. State	
	Apply Agreement Support Code Breakdown	

This report can be run for all commodities at once and exported to Excel. (Continued on pg. 3)



RETRIEVING MDMS CONSUMPTION DATA FOR AEWRS (CONT. FROM PG. 2)

Here are the steps for generating this report:

- 1. For Organization, select the Select Installation button.
- 2. When the **Select Installation** selection dialog appears, search for and click the **Add** button for your installation.
- 3. Under Commodity, select All.
- 4. Then select the calendar icon on the Date Range and select your Start and End months.
- 5. Then, select the **Export to Excel** button.

This gives you the below Excel report with usages broken out by commodity.

Installation Usage Report					
Date Range:	August 2022 - July 2023				
Organization:	FORT BLISS				
Commodity:	Electricity,Gas,Potable Water,Steam				
Command	Region	Installation	Commodity	Usage	Units
AMC	IMCOM-READINESS	FORT BLISS	Electricity	482,021.68	mmbtu
AMC	IMCOM-READINESS	FORT BLISS	Gas	52,086.77	mmbtu
AMC	IMCOM-READINESS	FORT BLISS	Potable Water	74,213,097.72	gal
7 1110		I OITT BEIOO		11,210,001.12	gui

And remember, for Army National Guard installations, you may select the **Apply Agreement Support Code Breakdown** to break usages into Federal Usage and State Usage.

USING MDMS FOR ENERGY AUDIT/PROJECT PLANNING

When working with installations on identifying buildings for potential audits and/or energy projects, the MDMS Outreach Team will begin with the Energy Project Identification Tool (EPIT), which was briefed in the Feb. — Mar. 2022 issue of the MDMS Update Newsletter. The EPIT is designed to identify the amount of energy used and the cost for the air conditioning, fans/pump and lighting systems' energy usage over the previous 12 months. After exporting the report for the installation, the next step is to go to the override tab. This calculation uses the base load to calculate the energy used during off-duty hours. This is calculated from the base load converted into an annual base load usage divided by the overall usage for the year. We take that off-duty usage and subtract the two types of usage that must be on during off-duty hours-the plug load, which is constant all the time, and the energy used to power systems when the Outdoor Air Temperature (OAT) drops below 45° F. That required load will generally range between 12% and 20% of the building's energy used during non-duty hours. The remainder is potential savings available to you if you can get the systems and/or their schedules under control. Therefore, the calculation takes the % of base load usage and subtracts the plug load and the load below 45° F. This generally will give a potential savings of 25-30%. You can then rank order the dollar savings by building to determine which would be the highest priority for your efforts. One can also see the overall impact of the Overrides of Schedule column for that energy savings measure, which for the example shown below and highlighted in yellow, is approximately \$373,000 per year in potential savings-even though our screenshot only shows a portion of the spreadsheet. (Continued on pg. 4)

											% of	
							12				Energy	
							Months				Non	
					Baseload	12	Extrapola	% of			Duty	
		Base		12 Months	as %	Months	ted	Data		Electric	-	Overrides
	Square	Load	Watts/	Consumption	Consum	EUI	EUI	Avail	Clim	Cost	Plug	of
Building	Foota	(KV _	SF 🕆	(kWh) 🍸	ption 🝸	(Electri	(Electri 🝸	ab 🕆	at 🔨	Annuall T	Loa	<mark>Schedu</mark>
21100	135,156	84.638	0.626	1,416,610.597	52.338	35.764	35.764	100	3B	\$104,681.81	41.3%	\$28,127.69
21000	77,153	61.900	0.802	1,026,956.089	52.801	45.418	45.418	100	3B	\$75,887.91	41.8%	\$20,619.24
20752	28,566	42.823	1.499	837,797.784	44.775	100.073	100.073	100	3B	\$61,909.88	33.8%	\$13,591.54
20665	53,133	34.617	0.652	422,994.452	71.690	27.164	27.164	100	3B	\$31,257.58	60.7%	\$12,330.65
21117	25,820	34.126	1.322	417,723.461	71.564	55.203	55.203	100	3B	\$30,868.08	60.6%	\$12,151.71
20500	129,113	42.908	0.332	1,135,749.308	33.094	30.015	30.015	100	3B	\$83,927.30	22.1%	\$12,052.88





USING MDMS FOR ENERGY AUDIT PLANNING (CONT. FROM PG. 3)

As is taught in our **Understanding and Troubleshooting System Overrides** training course, the highest return on investment (ROI) is fixing the overrides of system schedules since the schedule affects 20-40% of energy. Two things to note regarding the EPIT results:

- If you have one or more values of "N/A" in the Overrides of Schedule column, the Base load as % of Consumption was > 75%, which is theoretically impossible. This means everything in the building was left on (lights, fans/pumps, office equipment, etc.) constantly.
- The results will not represent building meters that do not meet the data quality criteria. Meter data quality
 was discussed in the Aug. Sep. 2021 and the Oct. Nov. 2021 issues of the MDMS Update Newsletter.

The next step in our analysis is to validate those top few buildings from the rank-ordered EPIT export by viewing the visual graph in the Interval kW tool, found on the Benchmarking sub-menu of the Energy Management page. This enables us to visually see where system schedules are overridden or a schedule is not in place. In the example below, the red callouts highlight weeknights and weekends where systems are running during non-duty hours. This effort could be managed easily by a REM to work with the shops and the local building managers to ensure these systems are off when they are not occupied.



In some cases, we find interval patterns that indicate issues with the meter, such as the timestamp being off by several hours, the precision is not sufficient, there is an issue with the multiplier, or the meter is just bad. In the example below, the precision is truncated. Notice that the base load is 2 kW, and the interval jumps are multiples of 2 (i.e., 2 kW, 4 kW, 6 kW, 8 kW, etc.). This meter needs to be configured to have precision.



The next example below shows a meter with the timestamp off by several hours (shown by hovering over the interval when it starts the ramp-up and looking at the time in the tooltip). As you can see by the interval patterns, the meter is just not reporting correctly. Notice the flux pattern where the kW alternates up/down every 15 minutes. (Continued on pg. 5)



BUILDING STRONG®

USING MDMS FOR ENERGY AUDIT PLANNING (CONT. FROM PG. 4)

After reviewing the top group of meters in the Interval kW module, the next step in our analysis is to review the subsequent set of savings potential targets, which includes the following three systems: air conditioning, fans/pumps, and lights. On the EPIT export, we look at the usage for each of those systems as proportioned by the standard usage for the systems on that site. These percentages for each system can be adjusted as desired. Once you know the usage for a system you have to decide how much savings your energy measure would bring for that system. We will once again rank order the data on each of the system's tabs.

The first system tab we review is for the Air Conditioning (AC). We will collapse/hide many of the columns to focus on the buildings at the top, based on cost. This will be prioritized based on the associated projected savings for an Energy Conservation Measure (ECM) at 10, 20 and 30%, as well as the supportable construction costs for a 20-year contract for 10, 20, and 30% savings. In the example below, we've highlighted the cost of the AC loading in yellow, rank ordered from highest to lowest. Highlighted in orange are the ECM at 30% and the supportable construction costs for a 20-year contract for 30% savings. Keeping the construction costs under that target cost for those top buildings might be difficult.

1									
							Constructi	Constructi	Constructi
							on Costs	on Costs	on Costs
							supportab	supportabl	supportabl
							le for	e for	e for
			Air				20 years	20 years	20 years
			Conditioni	Projected	Projected	Projected	contract	contract	contract
		Square	ng	savings for	savings for	savings for	for 10%	for 20%	for 30%
	Building 🛛	Footag *	Loadin 🚽	ECM - 10	ECM - 20	ECM - 30 *	saving *	saving	saving:
20500		129,113	\$7,950.88	\$795.09	\$1,590.18	\$2,385.26	\$7,950.88	\$15,901.76	\$23,852.64
21100		135,156	\$7,558.81	\$755.88	\$1,511.76	\$2,267.64	\$7,558.81	\$15,117.62	\$22,676.43
21000		77,153	\$5,437.76	\$543.78	\$1,087.55	\$1,631.33	\$5,437.76	\$10,875.52	\$16,313.28
20752		28,566	\$5,023.90	\$502.39	\$1,004.78	\$1,507.17	\$5,023.90	\$10,047.80	\$15,071.70
20707		36,423	\$4,730.46	\$473.05	\$946.09	\$1,419.14	\$4,730.46	\$9,460.92	\$14,191.38
21035		62,512	\$3,953.76	\$395.38	\$790.75	\$1,186.13	\$3,953.76	\$7,907.53	\$11,861.29

The next system tab we review is for the Fan/Pump Systems. Again, collapsing and hiding columns to end up with the below-highlighted columns to review, as was done with the last example for AC. In this case, you would expect to be able to do your project for this level of construction costs.

				Projected	Projected	Projected	Constructi on Costs supportab le for 20 years contract	Constructio n Costs supportabl e for 20 years contract	Construction Costs supportable for 20 years contract
Build	ing 🔽	Square Footac *	Fan/Pun +	savings for FCM - 10	savings for	savings for	for 10%	for 20%	for 30%
20500	ing	129,113	\$27,899.23	\$2,789.92	\$5,579.85	\$8,369.77	\$27,899.23	\$55,798.45	\$83,697.68
21100		135,156	\$21,461.80	\$2,146.18	\$4,292.36	\$6,438.54	\$21,461.80	\$42,923.59	\$64,385.39
20707		36,423	\$16,745.40	\$1,674.54	\$3,349.08	\$5,023.62	\$16,745.40	\$33,490.79	\$50,236.19
20752		28,566	\$15,893.73	\$1,589.37	\$3,178.75	\$4,768.12	\$15,893.73	\$31,787.46	\$47,681.19
21000		77,153	\$15,311.30	\$1,531.13	\$3,062.26	\$4,593.39	\$15,311.30	\$30,622.60	\$45,933.90
21035		62,512	\$12,340.78	\$1,234.08	\$2,468.16	\$3,702.23	\$12,340.78	\$24,681.56	\$37,022.34

And then, finishing with the final system tab of Lights, we would again do the same steps to get our lighting costs, project savings for ECMs, and the supportable construction costs.

Don't forget to opt-in to the Potential Energy Savings Notification emails via the Self Service page for email notifications of potential energy savings opportunities at your site, installation, or region. The buildings with Overrides of Schedule calculated values greater than \$10,000 qualify for the Potential Energy Savings Notifications.

The MDMS Outreach Team encourages you to schedule a one-on-one session to identify buildings for potential audits and/or energy projects at your site/installation. You may request this session by contacting the AMSD via the Feedback/ Help Request option under the Support menu in MDMS, or you may e-mail them at: <u>cehnc-army-meter-help@usace.army.mil</u>.

