MDMS *UPDATE*
~ METER DATA MANAGEMENT SYSTEM ~

US Army Corps of Engineers®

VOLUME 9, ISSUE 3 ~ FEBRUARY — MARCH 2024

FROM THE PROGRAM MANAGER

Welcome to our February - March 2024 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 highlights the success the 88th Regional Command has had with MDMS—especially the Energy Project Identification Tool (EPIT). The 88th have worked with the MDMS Outreach Team many times over the last two years and this article focuses on the savings they have realized. They are now focused on identified savings for several additional buildings and have identified their team's next steps for investigation and solution implementation.

The second article briefs Electric Vehicle (EV) charging station use case scenarios with corresponding configuration diagrams showing the meter placement on the network based on the use case. Assumptions are also noted at the end.

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: cehnc-army-meter-help@usace.army.mil

SUCCESS AT USARC 88TH REGIONAL SUPPORT COMMAND

The MDMS Outreach Team has worked with the 88th Regional Support Command over time through many one-on-one sessions focusing on overrides to schedule and the Energy Project Identification Tool (EPIT). On one of the early sessions, Ray Wrobel, Energy Manager for the 88th showed the results of his analysis identifying 20+ buildings with overrides, things he had found, actions that had been set in motion, and the estimates he had prepared. At that point, the Outreach Team was able to show him a preview of the EPIT which would help him tremendously in his estimation and project prioritization efforts. At that time, the EPIT showed approximately $300,000 per year in potential savings based on the overall impact for the overrides of schedule.

After utilizing the tool over the last two years, Wrobel touched base with the Outreach Team to provide an update on the potential energy savings identified by MDMS in three of their military buildings: Marysville, Pershing Army Reserve, and Frist Army Reserve Center. Wrobel recalled that the MDMS identified significant energy savings opportunities in these buildings through its analysis of energy consumption data. The potential savings are $30,000 for Marysville, $12,000 for Pershing Army Reserve, and $25,000 for Frist Army Reserve Center. Wrobel indicated that he was pleased to report that they are currently investigating these potential savings and taking steps to implement solutions. Their team is actively working on optimizing HVAC systems, installing energy-efficient lighting, and identifying other energy conservation strategies to realize these savings.

Wrobel said, "The MDMS has played a crucial role in identifying energy-saving opportunities across the 88th RD's 19-state area. By collecting and analyzing energy consumption data, the MDMS has helped to identify areas where energy efficiency can be improved, leading to significant cost savings and improved sustainability. For example, in Fiscal Year 2022, the 88th RD had 15 Energy and Water Conservation and Resilience projects at 15 locations throughout the 19-state region, resulting in a total energy savings of approximately $1.5 million. This would not have been possible without the insights provided by the MDMS."

Additionally, Wrobel said that MDMS has helped to identify opportunities for improving energy resilience, ensuring that critical facilities have access to energy and water supplies during emergencies or natural

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disasters. He indicated that this led to the implementation of backup power systems and other measures to ensure that the 88th RD's facilities can continue to operate during times of crisis.

Wrobel closed with, "Overall, the MDMS has been an invaluable tool in the 88th RD's efforts to improve energy efficiency and sustainability. By providing actionable data and insights, it has enabled the RD to make informed decisions that are contributing to a more sustainable and cost-effective future. We will continue to keep you updated on our progress and the results of these efforts. Thank you for your continued support of our energy efficiency initiatives."

ELECTRIC VEHICLE CHARGING STATION METERING USE CASES

The MDMS Program Team continues to get questions regarding our recommendations for configuring electric vehicle (EV) charging stations. On a recent webinar, one attendee asked specifically if we would recommend having them linked to a separate meter when the charging stations were installed? Thus, excluding them from the building load, so they could monitor the loads separately. Or would it be possible to have the MDMS system subtract the EV load?

With that in mind, we felt it pertinent to address these questions/challenges in this article. Here are the requirements for EV charging stations:

- Provide the ability to report on energy consumption from EV charging stations
- Do not compromise the data for energy management for a building

Below are our recommendations for the required metering configurations.

The ultimate goal is to simplify data gathering and maximize the probability of getting good-quality data. The simplest method is for each targeted usage to be metered separately. This becomes complicated when there are systems installed "behind the meter," which means we have a meter measuring usage for a building, and then we add another system, such as an EV station or a solar array, behind the meter so the meter cannot differentiate the various usages.

Combining usages behind the meter is common because adding the additional usage into a spare breaker in the panel is usually less expensive. That solution combines all the values, so a solar array generation will subtract from the building usage, giving a false reading. An EV station will show that the building is using more than the building is actually consuming. The key to data analytics for facilities is to narrow down the variables to actual building usage and then benchmark them against their peers.

So, the first requirement to make the building meter useful is to have a smart meter on any additional sources. The second is to try and have the connection to power being direct to the transformer or outside the building meter connection. This ensures the meters are not affected by the other usages.

To help clarify this, we have a few diagrams to indicate the connection points.

Diagram 1 is a building that has an EV station adjacent to the building. The preferred method of connection would be direct to the transformer or anywhere with access between the meter connection to the building and the transformer or the building interconnection from the local grid. The connection to the Enterprise Energy Data Reporting System (EEDRS) shows that the EV data can be fed into MDMS and accounted for in a report if required.

ELECTRIC VEHICLE CHARGING STATION METERING USE CASES
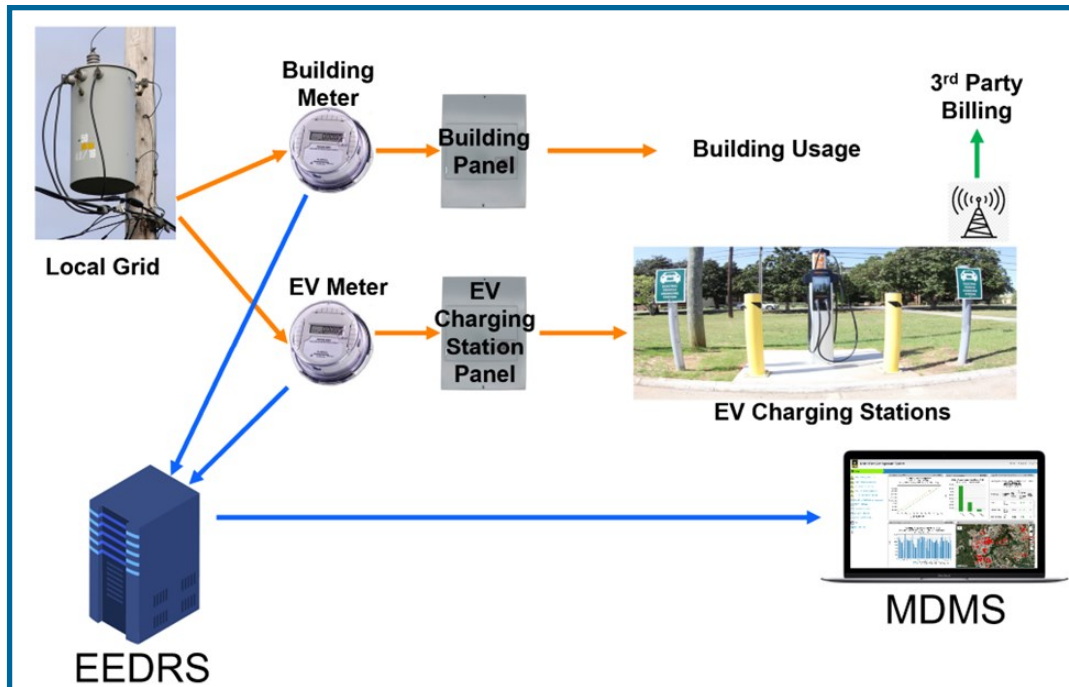## (CONT. FROM PG. 2)

Diagram 1: Adjacent to the Building

Diagram 2 is a building that has new solar adjacent to the building or solar that is not adjacent to a building. The preferred method of connection would be direct to the transformer or anywhere with access between the meter connection to the building and the transformer or the building interconnection from the local grid. The connection to the EEDRS shows that the solar data can be fed into MDMS and accounted for in a report if required.
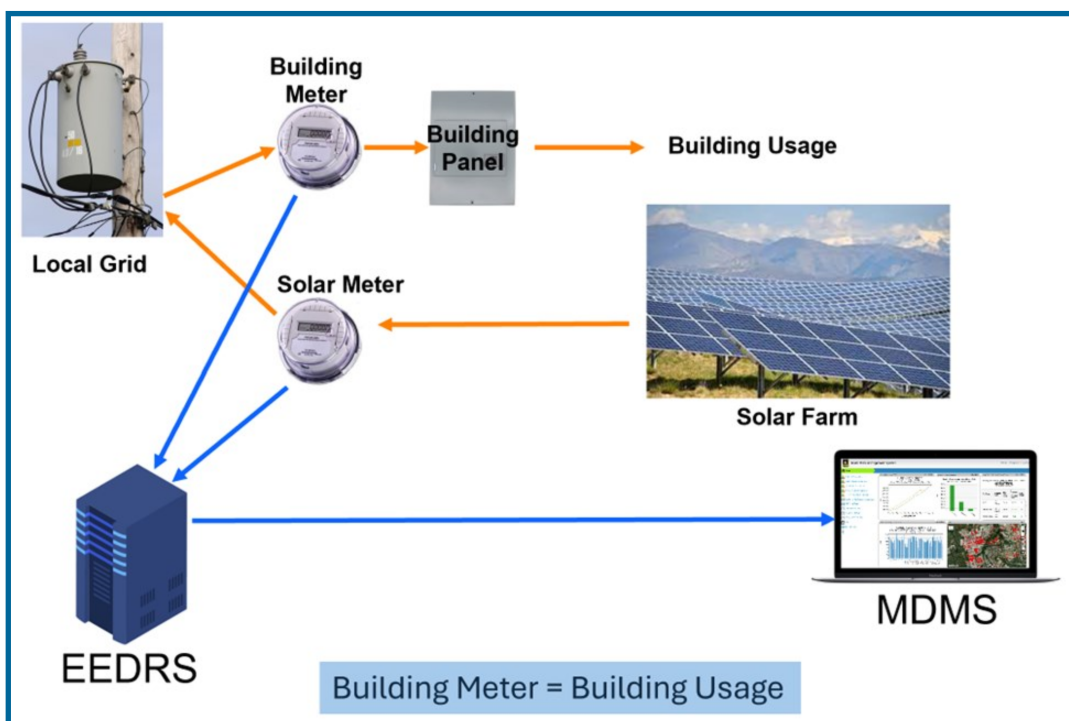

Diagram 2: New or Stand-alone Solar

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(CONT. FROM PG. 3)

Diagram 3 shows a building that has an EV station adjacent to it and has a solar array tied to the EV station. The preferred method of connection would be for the EV Station directly to the transformer or anywhere with access between the meter connection to the building and the transformer or the building interconnection from the local grid. From our perspective, the solar meter can be connected behind the EV meter. The connection to the EEDRS shows that the EV and solar array data can be fed into MDMS and accounted for in a report if required.
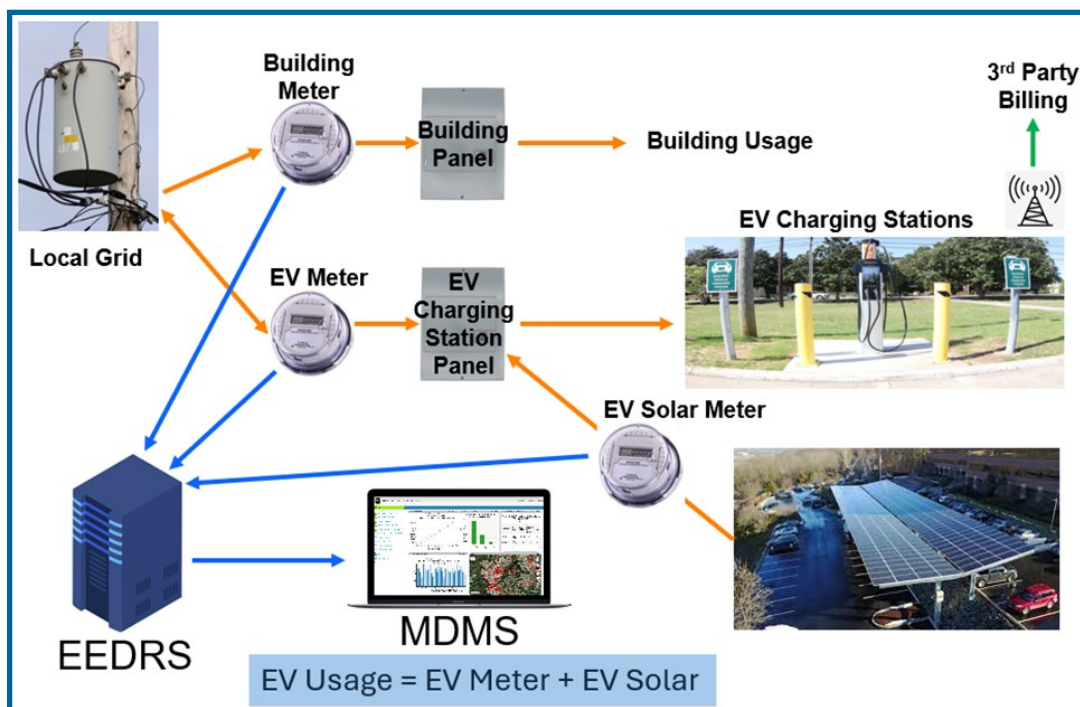

Diagram 3: EV Station with Solar

Diagram 4 is a building that has solar already installed behind the meter to the building. The data on this meter is not going to be correct. If there is a meter, it is usually a dumb meter. The meters are normally read monthly. The discrepancy is significant enough that it will be difficult to do any useful energy management with the meter data. There are a few things you can use but only about 5% of the capability of MDMS. If the meter is a Smart Meter or if you can add a Smart Meter, then we can work with you to get the data synchronized in MDMS and subtracted from the building usage. This is not preferred but can be used as a fall back since the data is now dependent on the meters staying in sync and there is not any data quality issues with either meter.

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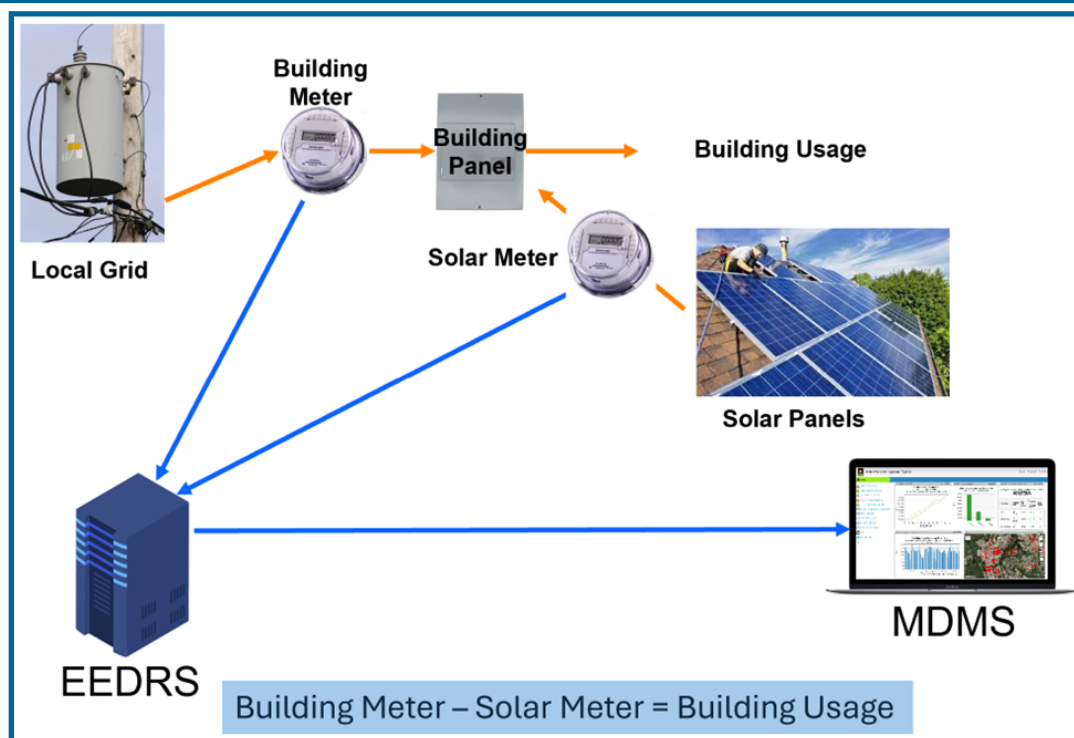## (CONT. FROM PG. 4)

Diagram 4: Existing Solar Behind the Meter

Here are the assumptions for EV charging station metering configurations:

- Each EV charging station will have its own record in HQIIS.
- EV consumption will be placed in a report that includes all EV use on the installation.
- EV charging station meters will be identified at the time of integration with MDMS so that it can be configured correctly in MDMS.
- Any generation would be metered separately.
- The meter for the EV charging station is NOT installed behind the building meter.
- Solar meters will be identified at the time of integration with MDMS so they can be configured correctly in MDMS.
- All solar meters behind the EV or building meter must have the same interval frequency as the EV or building meter (i.e., 15-min).
- MDMS will not accept 3rd party billing data.

If you would like to discuss this topic further or schedule a one-on-one session, please submit a request with a help desk ticket with the Army Meter Service Desk (AMSD) via the Feedback/Help Request option under the Support menu in MDMS or you may e-mail them at: cehnc-army-meter-help@usace.army.mil.