

Federal Aviation Administration—Oklahoma City, Oklahoma

WHY 50001 READY?

The U.S. Department of Energy's 50001 Ready program is a self-paced, no-cost way for organizations to build a culture of structured energy improvement that leads to deeper and sustained energy and GHG savings. Recognition is available for facilities and organizations that self-attest to the implementation of an ISO 50001-based energy management system without external audits or certifications.

Overview

The Mike Monroney Aeronautical Center (MMAC) in Oklahoma City is a Federal Aviation Administration (FAA) facility that has been the home of the Administration's medical and human factors research and training operations for more than 75 years. Encompassing more than 1,000 acres and over 130 buildings, the MMAC is home to the FAA Academy for technical training, the Civil Aerospace Medical Institute, the FAA Logistics Center, the aircraft pilot and drone registries, and the Enterprise Services Center. The MMAC campus hosts more than 6,300 federal and contract employees, with an annual operating budget of over \$1 billion.

Sustainability initiatives have been a strategic priority for the MMAC, which faces both challenges and opportunities specific to a federal agency. Decarbonization goals and targets are established by energy legislation and executive orders. For example, the 2007 Energy Independence and Security Act (EISA) requires that federal agencies identify the key buildings that comprise 75% of total energy usage and conduct regular energy and water audits on those buildings. In addition, those buildings must be recommissioned and system controls must be evaluated and optimized for current use. Having a robust energy management system in place can provide the structure needed to respond to sustainability requirements that will likely change over time.

To be proactive in meeting requirements, the FAA, under the U.S. Department of Transportation (DOT), prioritized 50001 Ready recognition for its facilities. FAA headquarters set an initial goal for five facilities to



FAA Mike Monroney Aeronautical Center Entrance. *Photo credit: Bryan Dahlvang, FAA MMAC*

become 50001 Ready, and the MMAC took the lead, becoming the first facility in all of DOT to officially establish an energy management system and become 50001 Ready—a particularly important milestone for the FAA and DOT.

Fortunately, the MMAC already had a robust sustainability program. In addition to the regular EISA audits and building recommissioning, the facility participates in the regional utility's strategic energy management program. The MMAC has benchmarked 60 of its buildings through ENERGY STAR Portfolio Manager, and several facilities are ENERGY STAR certified. Furthermore, the MMAC's experiences from achieving certifications in ISO 14001, ISO 9001, and ISO 45001 gave the Center a good understanding of the management system process.

By adding 50001 Ready to its energy program, the MMAC is demonstrating its commitment to continual improvement, a significant step for an organization with a robust system already in place.

“Based on our 50001 Ready energy management framework, the MMAC continues to identify energy and water savings opportunities, report progress toward our energy intensity reduction goals, and incorporate an energy efficiency mindset into everyday design and operations activities. Progress toward energy management goals is an integral part of the Center’s business management process.”

– Russ Goering, MMAC Energy Manager

Solutions

MMAC senior management made a commitment to energy management as a priority. The team has significant support not only from facility management leaders but also from MMAC senior leadership. Team members include a full-time energy manager, energy team engineering support, and additional engineering contract support. In addition, the facility holds a quarterly energy council that includes the core energy team, all the facility’s design engineers and architects, and personnel from operations and maintenance as well as facility management leaders.

Thanks to this targeted, committed, and coordinated support effort, the MMAC has had significant success with energy management—without allocating any additional funds to the effort.

For support in pursuing 50001 Ready, the energy management team participated in a cohort organized by FAA’s Office of Environment and Energy, with coaching assistance from 50001 Ready partner, Vermont Energy Investment Corporation (VEIC).

Key Takeaways: Implementing a 50001 Ready Energy Management System

- ▶ **Leadership support is critical.** Top management emphasizes energy performance, recognizing its importance in controlling operating costs. That support provides structure and allows the energy team to succeed.
- ▶ **A strong energy team creates the greatest opportunities.** The MMAC team includes a wide range of expertise, which facilitates system optimization. For example, when equipment is procured, the right people in operations and

maintenance are involved to ensure the new equipment is energy efficient. A particularly strong team characteristic is the inclusion of two engineers who provide support for energy program elements. One engineer focuses on project work, such as proof of concept testing. The second engineer works with the data, organizing and storing it in an accessible database so that information can be used for analysis.

“Having Energy team support from Engineering Design, Maintenance and Operations, and Management makes all the difference for a successful energy program and for 50001 Ready implementation.”

– Russ Goering, MMAC Energy Manager

- ▶ **A consultant or cohort can help guide the process.** The consultant-led cohort helped the energy team better understand the tasks and necessary processes and documentation needed to accomplish the tasks. The consultant provided training that divided the process into seven different manageable tasks and provided one-on-one consultation sessions with each of the cohort members.
- ▶ **Proof of concept testing allows the energy team to verify savings before rolling out a new approach facility-wide.** The energy team implements an idea in one building, using instrumentation meters to track results, and then works to replicate successful ideas in other buildings. For example, as more variable frequency drives and electronic equipment are installed in buildings, unwanted harmonics can be introduced into the electrical system. Transformers see these harmonics as “noise,” and energy is lost in the form of heat. The MMAC energy team conducted a test on a building with a variable frequency drive for a large heating and cooling unit. By introducing harmonic filters, the team reduced energy use of the unit by about 20%. After confirming the savings using their metering equipment, the energy team implemented a center-wide project and installed harmonic filters across the Center, saving 1.5 million kilowatt-hours annually resulting in savings of over \$100,000 on the Center’s electric costs.



Energy Team (left to right): Vicki Ray, Russ Goering, JD King, Kevin Coker, and Ozzy Diaz. *Courtesy of FAA.*

- ▶ **Advanced systems can facilitate gathering and using data.** The MMAC has advanced meters installed in approximately 60 buildings, providing granular data about energy usage. The majority of site buildings are connected to a robust building automation system, which provides a great deal of information about energy use. Using that information, the energy team has systematized options such as night setback and optimal ventilation. Having input from operations and maintenance personnel helps use the information gathered to identify these opportunities.
- ▶ **The Navigator, dashboard, and Playbook provide a central structure that makes it easy to track and report progress.** 50001 Ready calls for formal processes and documentation, and the tools help organize the program. The energy team found the Excel-based Playbook to be a valuable tool to support task completion. The dashboard provided a single structure that the team and top management could easily access for review and approval. In addition, providing management with clear and consistent visual updates allowed them to understand updates quickly and kept them involved. By keeping leadership aware of the energy program, the energy team has found that new energy projects are quickly approved, queued up and ready to go.

- ▶ **Centralizing processes and improving documentation enables consistency.** By organizing everything in one place, anyone from the energy team can access the same information from a central location at the same time. Furthermore, a newcomer to the team—and even a future energy manager—can look at the documentation, get a very good overview of the program, and understand the system quickly.

“One of the kudos I have to give is to whoever developed the Playbooks. That was a great move. It made it really, really easy to organize all of the tasks together to see what we’ve accomplished, to see which tasks we needed to work on next. Having the Playbooks as part of the 50001 Ready Navigator was a huge asset. I can’t say enough good about that.”

– Russ Goering, MMAC Energy Manager

Other Benefits

Achieving 50001 Ready recognition has increased organizational awareness of the MMAC energy management system and program, lending visibility to the FAA’s sustainability efforts.



Mary Sotos, Director of the Federal Energy Management Program (FEMP), presenting the 50001 Ready certificate of recognition to Russ Goering, Energy Manager, for the Mike Monroney Aeronautical Center.

The energy team has provided documentation and screen shots to other FAA facilities. Using the 50001 Ready structure generated shareable tools that will assist other facilities with achieving 50001 Ready recognition.

In addition, 50001 Ready helps the energy team keep track of goals and targets, helping the team respond with agility if a new executive order—or even a new administration—adjusts federal requirements.

The FAA has identified additional sites for future potential 50001 Ready recognition, and the MMAC facility intends to renew the designation annually.

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