Image Credit: Ameresco

Case Study: Ameresco and Fort Detrick

Military Base Enhances Energy Independence through Virtual Power Plant Participation

Project at U.S. Army Garrison at Fort Detrick (Md.) provides a model for improving reliability with integrated renewable energy solutions.

Nestled on 1,200 acres in Maryland, the **U.S. Army Garrison at Fort Detrick** is a hub for groundbreaking scientific and medical advancements, hosting the world's largest biological containment research campus.

When the base faced a critical need for reliable, future-ready energy infrastructure to support its vital mission, it turned to CPower and **Ameresco Inc.**, a leading energy solutions provider dedicated

"This project engages the power of strategic collaboration and technological innovation in advancing energy resilience and sustainability. With the integration of battery storage with Fort Detrick's existing solar infrastructure, CPower and Ameresco have delivered a model solution that enhances energy independence, strengthens grid stability, and reduces carbon emissions — all while supporting the U.S. Army's renewable energy goals. The success of this initiative not only benefits Fort Detrick but also serves as a scalable blueprint for military and commercial facilities nationwide."

– E+E Leader Product & Projects Awards Judge

Image Credit: Ameresco

to helping customers navigate the energy transition.

Together, the partners delivered an innovative efficient energy solution that has since redefined energy independence and sustainability for Fort Detrick, integrating a 6 MW / 6 MWh battery energy storage system (BESS) with the installation's existing 18.6 MW DC solar facility. Fort Detrick can now realize maximum performance and economic value as well because the system is integrated into CPower's Virtual Power Plant (VPP), allowing Ameresco to participate in PJM's Frequency Regulation, Economic Demand Response and Synchronized Reserves programs.

"We're proud to lead initiatives that not only bolster the U.S. Army's energy security but also align with our commitment to consistently deliver the most innovative and vendor-neutral energy solutions," said Nicole Bulgarino, President of Federal Solutions and Utility Infrastructure at Ameresco.

"This project at Fort Detrick is a stepping stone towards future developments, including potential

Image Credit: Ameresco

integration into a microgrid system, which will provide further essential backup power and support the Army's mission-critical operations during potential outages," she continued.

Supporting widespread sustainability initiatives to improve the ability of Fort Detrick to withstand and recover from energy-related challenges was a key objective for the project, as were reducing energy consumption and securing affordable energy, which it does through the purchase of renewable energy at or below current and projected utility rates.

Furthermore, in providing frequency regulation services to the regional grid, the Renewable Energy Generating System (REGS) ensures power quality and supports local communities, generating enough electricity to power the equivalent of around 2,720 homes per year.

Award-winning innovation

Focused on continually maximizing the benefits for Fort Detrick and the government, the REGS involved highly innovative and successful engineering design approaches. The implementation of CPower's VPP platform and optimization solution was pivotal as well.

This software simplifies VPP participation by using artificial intelligence to streamline the scheduling and dispatch of distributed energy resources (DERs) across various grid service programs, thereby maximizing revenue and on-bill savings.

CPower's software provided concept-stage modeling to determine the ideal BESS size and evaluate revenue potential. Then the ensuing collaboration between CPower and Ameresco during the development phase ensured seamless integration and avoided costly rework.

Image Credit: Ameresco

The team navigated complexities such as security requirements for metering and coordinating across multiple parties for equipment specifications and installation, by fostering open communication and building strong partnerships across all stakeholders, meeting all requirements without compromising the project's integrity.

In addition to providing numerous benefits for Fort Detrick, Ameresco and CPower **won an Environment+Energy Leader Award** for their collaboration on the REGS. As the top-scoring entry in the Software Implementation of the Year award, the project earned the Judges' Choice distinction, recognizing the partners for outstanding innovation and impact in enhancing energy resilience on the base and for boosting the PJM grid, North America's largest grid operator.

The project highlighted the critical role that flexibility plays in the nation's energy ecosystem, showcasing how batteries can provide rapid and frequent grid support, boosting customer rewards while supporting grid operators like PJM.

Ultimately, Fort Detrick and its Renewable Energy Generating System have come to exemplify energy resilience, offering military installations across the country a path to energy independence and sustainability.

CPower

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