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11.12.2015

FORT DETRICK SOLAR FIELD: THE ARMY'S SECOND LARGEST SOLAR PROJECT

Contributed by Marc Mezzanotte

Army installations like Fort Detrick in Frederick, Maryland, strive to make the next great contribution to our national defense, medical research knowledge, and worldwide communications tools. When all of the installation's cylinders are running on peak capacity, it demands close to 40 MW of energy per day.

Fort Detrick was chosen as one of a number of NetZero Energy Installations (NZEI) set to meet net-zero energy demands by 2020. This pilot program eliminates landfill use through recycling and composting, reduces overall energy load through conservation and efficiency, reuses energy through recovery and cogeneration, and provides full-scale renewable energy onsite.

NZEIs from Oregon to New York are investing in all types of renewable energy: wind, biodiesel, biomass, geothermal, and more. Once these more than two dozen projects are fully operable, they will help the DOD reach its broader goal of having [three gigawatts of energy generation capacity](#) by 2025—enough power for every home in Washington, D.C., with some to spare.

The Importance of Investing in Grass

Fort Detrick has chosen to invest in on-site solar energy generation that, once completed, will be the second largest solar project ever constructed on an Army installation at 18.6 MW. Designing the layout for the 60,000 solar panels proved to be a challenge, as we needed to meet newly enacted stormwater design guidance for solar panel installations put forth by the Maryland Department of the Environment along with a number of site constraints. Not only did the solar plant need to be segregated into three different areas, but portions of the area existed within a floodplain. There were only 67 acres of land to work with (without the added benefit of excavation), and the existing site was overrun with noxious weeds and Johnson grass.

We first addressed the flood risk and physical space constraints by working with the installation contractor to design the minimum amount of space between rows and panels. This also kept us from having to install structural stormwater devices and thereby met the environmental regulations. The client then presented a solution that eliminated the need for excavation by using a screw-and-anchor technique to secure the panels. To take care of the noxious weeds



Marc Mezzanotte

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and Johnson grass, we took a look outside normal industry solutions and recommend a low-maintenance grass called [FlightTurf®](#).

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This project marks the first time the patented grass will be cultivated under a solar array, and it will deter both wildlife and invasive vegetation while growing at an ultra-slow pace that requires only annual mowing. Though it may seem trivial to invest so much time and energy into grass, the fact is that it may save millions of dollars in maintenance costs over 25 years and reduce emissions by the metric ton.



A Blueprint for Increased Energy Security

Every watt of energy generated by the plant will be consumed by Fort Detrick, covering approximately 35 percent of the fort's peak electrical demand. The project's unique financing structure incorporates a 25-year electricity purchase agreement with an independent renewable energy facilities provider that will build, own, operate, and maintain the plant.

Bringing highly specialized private-sector parties to the table can lead to more innovative design solutions from the ground up that can become a blueprint for how defense installations throughout the U.S. can increase their energy security.

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