U.S. AIR FORCE ACADEMY TARGETS NET ZERO ENERGY GOALS WITH A 6 MW SOLAR SYSTEM

As a Net Zero Energy base under the Net Zero Energy Installations (NZEI) initiative, the United States Air Force Academy (USAFA) needed to aggressively pursue renewable energy to meet its goals. The USAFA’s key target is to produce 100% of its electricity needs on the base. Collaborating with Colorado Springs Utilities (CSU), the academy sought a solar partner to develop the largest ground-based solar system possible within their budget. After a rigorous selection process, one solar company stood out with the experience, technology, and financial know-how to build a successful solar project to military standards—SunPower. Working together, SunPower and CSU designed and installed a 6 megawatt solar power system on time and on budget. The solar power system will provide up to 11% of the base’s needed electricity, and potentially, it could provide 15% by 2015 as the USAFA continues to reduce its energy demands.

PROJECT OVERVIEW

Location: Colorado Springs, CO
Completed: April 2011
Installation Type: Ground
System Size: 6 MW
PV Surface Area: 43 acres
Number of Panels: 18,888
Product(s): T0 Tracker

BENEFITS

• Generates half a million dollars in energy savings each year
• Offsets 9,400 tons of carbon dioxide emissions annually equal to the removal of 40,900 cars from the road over 25 years
• Qualifies for EPACT 2005 federal mandates
• Supports goals for a Net Zero Energy base and for the USAFA’s Falcon Green strategic plan
• Protects pilots from sun glare with a patented anti-reflective coating on solar panels
AGGRESSIVELY PURSUING SOLAR POWER

After being selected as a Net Zero Energy base, the United States Air Force Academy (USAFA) created a bold plan called “Falcon Green” to achieve the goal of producing 100% of the base’s electricity demand on-site. The strategic plan became the basis for evaluating multiple parcels of land for renewable energy. Geoscientists analyzed wind and solar power, but solar power was the clear winner based on the geography, the environmental impact, and the specific needs of the USAFA. With $18.3 million from the American Reinvestment and Recovery Act of 2009 aiding implementation, the USAFA reached out to Colorado Springs Utilities (CSU) to take the next step and bring solar power to the academy.

SUNPOWER’S EXPERTISE OUT-SHINES COMPETITORS

“CSU had already worked on commercial and residential solar projects, but was very new to the large-scale solar industry”, said General Manager John Romero. So they knew that they needed an experienced leader in solar power. CSU and the USAFA reviewed 22 respondents for the project, but SunPower’s experience provided confidence in critical areas including:

- Experience installing 40 MW of solar power to date for federal government and military installations such as Nellis Air Force Base
- Experience with power purchase agreements for over 200 MW of solar power
- Strong financial standing and ability to use federal investment tax credits
- Vertically integrated—has the solar technology, the ability to design it, and the team to install it

HIGH EFFICIENCY AND TOP TECHNOLOGY RESULTS IN BEST NET PRESENT VALUE

Delivered on time and on budget, SunPower created a solar power system that maximizes electrical production while using only half of the available land. SunPower achieved this through its high efficiency solar panels and by installing the SunPower Tracker® system, which follows the sun’s movement. This tracking system can increase sunlight capture by up to 25% over conventional fixed-tilt systems. Now, the United States Air Force Academy can look forward to 25 years of solar power in partnership with CSU and thanks to the expertise, technology, and experience of SunPower.

― Russell Hume
Energy Program Manager/Mechanical Engineer
United States Air Force Academy

― John Romero
General Manager
Colorado Springs Utilities

“I’ve been pleased with what I’ve seen so far, and I look forward to seeing the next 25 years of solar power.”