

Green Proving Ground Test Bed Project

Technology Fact Sheet

Category:

Power Generation

Technology Name:

Photovoltaics (PV): High-efficiency and medium-efficiency crystalline, thin-film

What is this Technology?

This project includes high efficiency solar panels that will generate two megawatts of renewable energy per year, and a "Solar Lab" where the performance of four different types of solar technology will be researched by GSA and the Department of Energy's Sandia National Laboratories to determine which solar panels work best in the Midwestern climate

Why is GSA interested?

Renewable Power - The EPOA 2005 requires that, by 2013, 7.5% of electricity consumed by the Federal government must come from renewable energy sources to the extent it is economically feasible and technically practicable. A solar lab designed to test new equipment for technical performance and potential life-cycle cost effectiveness can be of value to assist with how GSA decides to meet these legislative requirements. Evaluation of installed costs, technical performance, and ongoing maintenance issues will allow GSA to develop consistent guidance for GSA energy managers

Cost effectiveness - In public building applications, installed costs for conventional PV systems were between \$8 and \$9/watt in 2009, but costs have been rapidly decreasing since 2009. In general, PV systems are not cost effective without considerable financial incentives in the form of rebates and/or the sale of renewable energy credits (RECs). Little is known about the comparative performance of different PV technologies in diffuse climates such as the Midwest.

Operations and Maintenance - In a grid-connected commercial systems study from 1998-2003, most of the operations and maintenance (O&M) cost for conventional PV was a result of inverter adjustments in the first 6 months. This study will be verified.

Applicability - PV panels are technically feasible in most locations. However, there is little data on the energy production, costs, performance, and reliability of such systems over time in a cold, cloudy environment.

Adapted from report by Pacific Northwest National Laboratory