



Energy Efficiency for the United States Air Force

In 1999, Siemens Building Technologies was awarded an IDIQ contract to provide energy savings performance contracting solutions to United States Air Force facilities in Southwest Region 6, covering facilities throughout the state of Texas. Since then, Siemens has been awarded multiple task orders at installations throughout the region, representing nearly \$65 million in investment that will result in the equivalent of more than \$7 million in annual energy and operational savings for the USAF.

Through these contracts the Air Force will save the equivalent of \$110 million, reduce electricity consumption by 700 million kilowatt hours, reduce natural gas consumption by 15 million therms and reduce carbon dioxide (CO₂) emissions by 1.1 billion pounds. Together, these savings are the equivalent to the CO₂ from the annual energy use of nearly 70,000 American homes.

Past task orders awarded to Siemens have ranged from \$200,000 to nearly \$25 million and all have exceeded savings guarantees. As a result, Siemens has earned the highest certification from the National Association of Energy Service Companies (NAESCO). Dyess Air Force Base won the 2003 Presidential Award for Leadership in Federal Energy Management for work performed through a Siemens Energy Savings Performance Contract.

In December 2008, Siemens was also awarded ESPC contracts for the Department of Energy and Army Corps of Engineers.

Siemens contracts are designed to support the Federal government's goals from the Energy Policy Act of 2005, Executive Order 13423, the 2007 Energy Independence and Security Act and the 2009 American Recovery and Reinvestment Act. Areas Siemens supports include:

- Reduction in energy and water consumption
- Expanding the use of renewable energy sources
- Incorporating sustainable design principles
- Metering and energy management

Siemens projects for Air Force facilities have included a variety of energy conservation measures and retrofits:

- Comprehensive site-wide lighting system upgrades
- Water efficiency measures including effluent water supply and distribution systems
- Power generation
- Solar domestic hot water system installations
- Steam distribution system upgrades including steam trap replacement
- Boiler and chiller plant upgrade and optimization projects including thermal energy storage and comprehensive distribution system upgrades
- Comprehensive utility management and control system replacements and upgrades
- Complete HVAC renovations and modernizations

Siemens Building Technologies provided guaranteed performance-based solutions at the following bases in Southwest Region 6:

- Lackland Air Force Base
- Dyess Air Force Base
- Goodfellow Air Force Base
- Laughlin Air Force Base
- Randolph Air Force Base
- Naval Air Station Joint Reserve Base Ft. Worth

Air Force Facility Project Highlights

Dyess Air Force Base

Dyess AFB needed to ease the stress on the nearby city of Abilene’s potable water supply. Using the city’s effluent water for irrigation, a Siemens Performance Contract project added two eleven million gallon holding reservoirs, two pump stations and three miles of distribution piping — preserving two percent of Abilene’s annual water usage while saving the base \$300,000.

Goodfellow Air Force Base

This comprehensive project included an innovative virtual central plant — connecting 19 chillers in ten central plants. As a result, now only five of the chillers are used for summer cooling — eliminating the need for a new \$9 million central plant. Also included were lighting retrofits for 50 facilities and exterior areas and Siemens helped secure utility rebates to cover 15 percent of the total project cost. The savings generated funded a synthetic turf installation for base athletic fields.

Lackland Air Force Base

Lackland AFB is home to numerous specialized training buildings, aircraft hangars and support buildings, dormitories, short-term lodging and administrative offices. A comprehensive Siemens Performance Contract provided base-wide lighting retrofits, numerous HVAC improvements and the addition of solar energy, including the installation of window solar film to reduce peak cooling loads and an upgrade of plumbing devices including toilets, urinals, sinks, dishwashers and showers.

Air Force Southwest Region 6 Siemens Project Overview

Texas Sites	Project Investment	Total KWh Reduction (Electricity)	Total Therm Reduction (Natural Gas)	Total CO ₂ Reduction (pounds)	Equivalent Annual Savings	Technologies Installed
Dyess AFB Abilene	\$47.5 Million	228 Million	7 Million	348 Million	\$4 Million	<ul style="list-style-type: none"> • Back-up generation system • Thermal energy storage systems • New central plants • Effluent water diversion for irrigation • HVAC replacements • Lighting retrofits • Energy management system upgrades • Water conservation • Occupancy sensors • Daylight harvesting
Goodfellow AFB San Angelo	\$2.6 Million	57 Million	--	67 Million	\$276,000	<ul style="list-style-type: none"> • Lighting retrofits • Chilled water plant • Synthetic turf
Lackland AFB San Antonio	\$12.3 Million	171 Million	6.5 Million	353 Million	\$1.2 Million	<ul style="list-style-type: none"> • Lighting retrofits • Water conservation • Solar water heating • Chilled water thermal energy storage • Window solar film
Laughlin AFB Del Rio	\$5.4 Million	112 Million	296,000	135 Million	\$614,000	<ul style="list-style-type: none"> • Boiler system replacement and modifications • Chiller replacement • Lighting retrofits • Water conservation
Randolph AFB San Antonio	\$2 Million	56 Million	--	91 Million	\$168,000	<ul style="list-style-type: none"> • Chilled water thermal energy storage • Chilled water distribution system expansions and upgrades
Naval Air Station Joint Reserve Base Ft. Worth	\$8 Million	73 Million	2 Million	118 Million	\$876,000	<ul style="list-style-type: none"> • Boiler and chiller replacement • Lighting retrofits • Energy management system upgrades • Water conservation • Ramp lighting installation

Utility savings and emissions reductions calculations are based on total savings and reductions for entire length of contract; CO₂ reductions are based on e2 Calc: Emissions and Energy Calculator from the Energy Agency for the State of Texas.

Siemens Industry, Inc. — Building Technologies Division

As a leading provider of energy and environmental solutions, building controls and fire safety and security system solutions, Siemens makes buildings comfortable, safe, productive and less costly to operate. Each of our offices is a full-service branch staffed by sales professionals, on-site technical service specialists and project management teams that deliver complete building solutions.

With our partner Siemens Government Services (SGS), we help Federal Agencies manage their energy costs, improve reliability and enhance performance with an approach that is cost effective, compliant and responsive.

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