

Energy Audit – Military Base Eareckson Air Station Shemya Island, Alaska

Program

US DOE FEMP SAVEnergy Program

Scope of Services

- Utility Bill Analysis
- Field Surveys
- Energy Analysis
- Thermal Imaging
- Final Report

Level of Involvement

Prime Contractor

Facility Size

856,000 sq. ft.

Facility Type

Air station including dormitories, dining hall, radar installations, power plant, offices, maintenance facilities, water supply, hangers and workshops

Project Results

- High efficiency lighting
- Lighting system controls
- Building management system
- Expand waste heat system
- Weather sealing large doors
- Low-flow water fixtures
(faucets, showers and water closets)

Project Costs

Installation Cost: \$893,250

Simple Economic Payback: 9.0 years

EME Group completed a detailed energy audit for the Eareckson Air Station (EAS) located in the western Aleutian Islands, approximately 1,500 miles west of Anchorage, Alaska. The base provides radar operations and serves as a divert airfield for airplanes crossing Pacific Ocean in the event of an in-flight emergency. The energy audit was conducted under a multiyear energy audit contract managed by the US Department of Energy through a request from the USAF Pacific Air Command.

The base was constructed in the early 1940's for offensive operations against Japan in World War II. Since that time the base has been expanded to



Aircraft Hangers

provide a variety of roles and now includes over 30 buildings ranging in size from 5,000 to 241,000 sq.ft. in floor area. Electricity is provided by a central power plant that includes six diesel engines from the 1940's that are rated at 4,160 hp to produce 3 megawatts at 13.8 kVA each. Each generator has a waste heat boiler that captures energy from the engine exhaust that generates hot water for distribution to selected buildings. Buildings that are not on the waste heat loop are heated by either JP8 fired boilers or with electricity. Control of the heat recovery system is done manually by diverting more engine exhaust through the heat recovery boilers. Due to the local climate conditions, there are no provisions for central cooling other than for critical cooling requirements.

Lighting is mix of T12 and T8 fluorescent, T5HO, high intensity discharge and scattered incandescent fixtures. Controls are typically manual other than exterior lighting fixtures that are equipped with photocells.

We identified a wide range of energy conservation measures, many of which are applicable in multiple buildings that will save approximately 18% of EAS's estimated base building electric use (lighting, plug loads, heating, etc). Our recommended measures will also save approximately 9% of the JP8 fuel used for heating and domestic hot water. In buildings with a low per MBtu cost, thermal measures were generally not cost effective. However, if the fuel mix changes in the future, these measures should be re-evaluated.