


**MAINE ARMY NATIONAL GUARD**
**14 Facilities Statewide**

**The Challenge**

By Executive Order 13423, all federal agencies, including the Army National Guard, are required to improve energy efficiency through the reduction of energy intensity by 30% by the end of the fiscal year 2015.

The Maine Army National Guard, through the Directorate of Facilities Engineering, identified 14 facilities in the State of Maine to be evaluated for energy improvement opportunities. They further identified specific building systems to be considered for upgrades. The study was performed in the Summer of 2010 and selected energy opportunities were put out to bid beginning in the Winter of 2011.

**Our Findings**

- An aggregate 18% reduction in annual energy costs resulting in a savings of approximately \$101,460 annually
- Predicted aggregate return on investment of 6.6 years
- Improved capital and lifecycle investment decisioning
- Extended service life of facility assets


**The Solution**

The Maine Army National Guard retained Cordjia Capital Projects Group ("Cordjia") to perform Building Systems Operational Checks of select building systems for 14 facilities in the State of Maine.

Our team focused on the mechanical, electrical, and plumbing systems, building automation system, and building operations of the following facilities:

- Augusta Armory
- Bangor Building No. 255
- Belfast Armory
- Brewer Armory
- Calais Armory
- Caribou Armory
- Gardiner Armory
- Houlton Armory
- Lewiston Armory
- Norway Armory
- Portland Armory
- Sanford Armory
- Waterville Armory
- Westbrook Armory

Energy improvements identified by the Maine Army National Guard to be evaluated included:

- Boiler Replacement
- Heating Distribution System Replacement
- Building Automation Installation
- Automatic Damper Installation
- Vacancy Sensor Installation
- Lighting Replacement
- Window Replacement

**FINANCIAL HIGHLIGHTS**

- Total Implementation Cost: \$673,825
- Annual Energy Savings: **\$101,460**
- Return on Investment: **6.6 years**

**Findings**

Cordjia determined that there are several facilities that would benefit from a boiler replacement and changing to an alternate fuel source, natural gas.

Installation of automatic dampers should be considered in the boiler room in eight of the facilities. It was also recommended that replacing several heating distribution systems were not cost-effective in terms of return on investment ("ROI").

Installation of building automation systems should be considered in ten of the facilities and vacancy sensors should be considered in twelve of the facilities.

Replacement of drill hall lighting in six of the facilities should be considered with T-5 HO four bulb fixtures with motion sensors.

Thermal pane window replacements were evaluated and determined to be cost-prohibitive in terms of ROI, however, an alternative of installing storm windows is recommended for ten of the facilities.

All recommendations contained within the report represent an 18% reduction in annual energy costs or approximately \$101,460 annually with an aggregate ROI of 6.6 years.

*we don't just deliver solutions | we lead them™*

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