



General Electric Aircraft Engine Precision Manufacturing Case Study



The Challenge

General Electric is one of the world's leading manufacturers of large jet aircraft engines. One of GE's largest jet engine manufacturing facilities is located in Lynn, MA and encompasses over 1 million square feet of precision manufacturing operations. The facility produces helicopter engines for the Sikorsky Black Hawk troop transport and jet engines for the Boeing F/A-18E/F Super Hornet fighter.

The Opportunity

As part of General Electric's lean manufacturing initiative the company turned to National Grid for assistance in identifying energy cost reduction opportunities. National Grid retained B2Q Associates, Inc to assist the Aircraft Engine division develop a comprehensive, multi-phase energy efficiency and operating cost reduction program. In order to meet GE's stringent precision manufacturing requirements, and the utility's cost-benefit criteria, B2Q conducted detailed facility-wide site surveys, equipment testing, benchmarking, equipment modeling, engineering and cost benefit analysis, and documentation of energy and operating efficiency improvements that qualified for utility incentives.

The Results

Our engineering team evaluated over 86 energy and operating efficiency projects, of these, 12 projects were implemented resulting in 8.6 million kWh in annual savings. Based upon the outstanding results, we were retained to continue our work and documented an additional 4.9 million kWh annual savings. Projects included: high pressure steam trap replacement; optimization of 12.5 MW condensing turbine resulting in 2.5 million kWh annual savings, a compressed air leak audit yielding 2.1 million kWh savings; CNC Power Saver Controls resulting in 1.5 million kWh savings; lighting improvements generating 1.1 million kWh savings; new plant air compressors resulting 3.7 million kWh annual savings, and BAY High Pressure CA Plant controls yielding 450,000 kWh in annual savings.