Success Story

Compressed Air Efficiency Program

Manke Lumber Harvests Energy Savings

Overview

Manke Lumber Company, the largest locally-owned lumber mill in the Puget Sound area, has operated on the Tacoma Tideflats since 1964.

Over the last 30 years, Manke has expanded its operations, increasing production significantly. Additional compressor capacity was installed, but the effect on overall system efficiency was not addressed. Deficiencies included inefficient compressor controls, excessive piping distribution losses, inadequate air storage to meet peak demands, and the inability to turn off compressors during non-peak times. This situation resulted in a very inefficient system that ran almost continuously, causing increased costs, frequent downtime periods, and lost production.

After meeting with Tacoma Power, Dick Parman, Manke's project manager, contracted with Rogers Machinery of Seattle to conduct a comprehensive demand- and supply-side analysis of the existing compressed air system to identify efficiency improvement opportunities.

The demand-side analysis revealed numerous significant air leaks within the mill as well as inappropriate uses of compressed air, such as for personal cooling and non-regulated PVC hose maintenance blow-down. In addition, an inefficient piping distribution systems was causing high pressure drops. The supply-side analysis revealed three inefficient modulating compressors totaling 700hp, only one 500-gallon air receiver tank, and two inefficient regenerative dryers.

The supply-side analysis showed that over $38,000 could be saved annually by installing efficient compressors and additional air storage, modifying the piping distribution system, and replacing the existing dryer operation with a refrigerated cycling dryer that would operate for nine months of the year.

Project Summary

- Completed demand-side assessment with repair of major air leaks.
- Added new equipment:
  - Quincy QNW-V350 350hp compressor with Toshiba H-7 variable-speed drive and graphic interface.
  - Quincy QNW-1521 300hp fixed-speed compressor with low unloaded horsepower controls.
  - New control speed package on existing Quincy 1500 300hp compressor.
  - Two Quincy C2890 air-cooled aftercoolers with moisture separator and auto condensation trap, with variable speed fan control.
  - Zeks 4000HSFM multiplex cycling dryer.
  - Two 2,560-gallon Manchester air receiver storage tanks.
  - Distribution piping modifications with 200 feet of additional 4-inch piping.
- Participation by four Manke employees in Tacoma Power's co-sponsored Compressed Air Challenge training.

Lessons Learned

"This project has made our operation more energy efficient which has increased our competitive edge in a very low-margin industry. It has been a pleasure to partner with Tacoma Power on this win-win efficiency endeavor".

-- Chuck Manke/Owner

Company Profile

Manke Lumber Company, the largest locally owned lumber mill in the Puget Sound area, has operated on the Tacoma Tideflats since 1964, providing family-wage jobs for 275 employees.

The sawmill produces 160 million board feet of Douglas fir lumber annually. Operations include a wood pellet facility that uses waste sawdust to produce a high-quality, low-ash fuel.

The vertically integrated company also owns and cultivates a 55,000-acre tree farm that supplies raw logs to the mill.

This fourth-generation family business considers proactive environmental stewardship as the key ingredient for continued success and sustainability.

Energy efficiency is an important component of this corporate vision, which motivated the company to participate in Tacoma Power's Compressed Air Efficiency Program.

Bottom-line Results

Total installed project cost: $313,348
Total annual savings: 923,536 kWh; $38,244
Tacoma Power financial incentive : $110,824
Simple payback period: 5.3 years

Benefits

Reduced annual electricity expense
Reduced maintenance costs and unplanned downtime
Reduced sound levels in the plant
Annual leak audits and repairs

Photos courtesy of Steve Craig

About the Program

Tacoma Power's Compressed Air Program takes a holistic approach that addresses four major elements for long-term energy savings:

- ***Comprehensive Training***
  Tacoma Power offers compressed air training opportunities for plant employees.
- ***Demand-Side Assessment***
  Tacoma Power funds up to 50% of the cost of a thorough demand-side analysis of the customer's compressed air system. This analysis, conducted by a qualified vendor, identifies air leaks and inappropriate uses of compressed air.
- ***Supply-Side Assessment***
  Tacoma Power publishes guidelines that provide engineering consultants, equipment vendors and customers with detailed requirements for identifying and documenting accurate energy and operational savings opportunities.
- ***Financial Incentives for Efficient Equipment***
  Tacoma Power offers incentives for installing efficient compressed air system technologies, including variable-speed compressors, efficient compressor controls with additional air storage, and distribution modifications such as piping and high-efficiency air nozzles. Cash incentives are based first-year savings, at $0.12 per kilowatt-hour, up to 50% of the approved project cost.

Questions?

Call 253-502-8619 or visit www.tacomapower.com

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