

# Variable Frequency Drive Motors

BETTER LIGHTING, LOWER ELECTRIC BILLS & REDUCED EMISSIONS

## CASE STUDY



### Objectives:

Hancock Lumber wished to reduce electricity use in order to:

- Maintain competitive manufacturing costs despite a projected electricity rate hike
- Protect good jobs at its Bethel sawmill
- Meet corporate goals for environmental sustainability and efficiency

### Strategies:

Hancock worked closely with Ingersoll-Rand, manufacturer of air compressors; Progressive Solutions; and the electrical engineers at Trask-Decrow, an Efficiency Maine Qualified Partner, to identify the following sources of cost-effective electricity savings: switching to VFD-controlled motors; installing more efficient lighting; and implementing new production strategies.



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## Hancock Lumber: pulling energy savings out of thin air

Hancock Lumber uses compressed air throughout its Bethel sawmill—to saw, dry and mill lumber, as well as for clean-up and maintenance—so it accounts for a major portion of the company's electricity use. To mitigate the impact of a near doubling of its electrical rates, Hancock harnessed the superior efficiency of Variable Frequency Drives (VFD) for its air compressor, as well as fans and water pumps.

Combined with more efficient lighting and new production strategies, the VFDs helped Hancock reduce electricity use at the Bethel sawmill by 25%. Factoring in \$45,874 worth of incentives from Efficiency Maine and a \$32,960 USDA grant, the project paid back in less than *four months*.

*"The use of variable frequency drives, more efficient lighting and other measures helped us save money, protect jobs and further our company's overall thrust towards energy efficiency and sustainability."*

*-Mike Halle, General Manager, Hancock Lumber's Bethel Sawmill*

### Estimated Annual Savings

Electricity....\$338,772\*  
Labor.....\$3,250

\*See note on reverse.



Maine Public Utilities Commissioners, Sharon Reishus (l) and Vendeau Vafiades (r), flank Governor John Baldacci presenting Efficiency Maine's 2008 Phillip C. Hastings Award for Energy Leadership to John Cote, Maintenance Supervisor, and Mike Halle, General Manager, of Hancock Lumber.

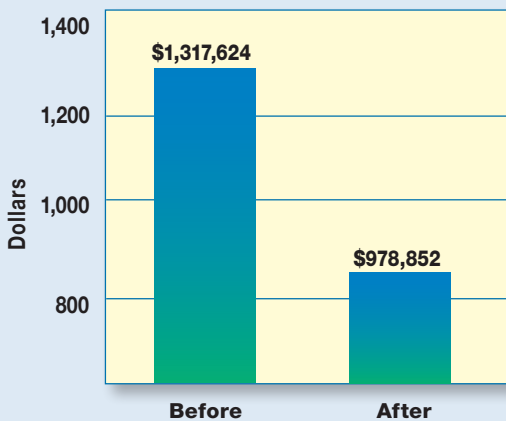
# Variable Frequency Drive Motors

## The Plan:

The Hancock team implemented the following measures to cut electric use:

- Replaced inefficient air compressor with a new, highly efficient VFD model
- Installed VFD fans and water pumps
- Upgraded to more efficient lighting
- Switched to new production strategies that improved output per shift by 50%

**Annual Electricity Costs (\$1,000s)\***



\*Note: Costs are based on actual utility billing provided by Hancock Lumber. For the sake of comparison, 2007 electricity cost is adjusted to reflect 2008 rates.

## The Results:

Hancock reduced annual electricity use at its Bethel sawmill by over 25%:

- Using VFDs for air compressor, fans and pumps: 12% savings
- Upgrading to more efficient lighting: 8%
- New production strategies: 6%



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Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help Maine residents and businesses reduce energy costs, and improve Maine's environment.



## Project Benefits

- Saved more than \$300,000 in annual electricity costs
- Reduced maintenance costs
- Increased productivity
- Helped fulfill the company's thrust towards greater energy efficiency and sustainability

## Financial Analysis

Project costs . . . . .	\$182,021
Incentives from Efficiency Maine . . . . .	\$45,874
Annual reduction in electricity costs . . . . .	\$338,772 <sup>1</sup>
Estimated annual labor savings . . . . .	\$3,250
Simple payback . . . . .	4.8 months <sup>2</sup>

<sup>1</sup>Savings are based on actual utility billing provided by Hancock Lumber, with 2007 electricity cost adjusted to reflect 2008 rates for comparability.

<sup>2</sup>This is based on the cost less Efficiency Maine incentives. When the USDA grant of \$32,960 is factored in, the payback period drops to 3.7 months.

## Project Team

- Hancock Lumber
- Efficiency Maine
- Ingersoll-Rand, Manufacturer
- Progressive Solutions
- Trask-DeCrow, Qualified Partner

