

How one of Hancock Lumber's smaller lumber mills generated its own electricity with NLine Energy's steam turbine

The Goal of Generating Electricity

Hancock Lumber operates three lumber mills in Maine that process Eastern white pine trees into boards ready for building applications. From its inception in 1848, the company has sought to produce pine boards that surpass industry standards.

Since it takes a great deal of electricity to operate a lumber mill, Hancock Lumber began to question how to generate electricity using the high-pressure steam produced by the mills' boilers.

"Because our mills produce a great deal of steam, we figured we could generate a substantial amount of electricity—enough to significantly offset electricity pulled from the town's electrical grid," said Mike Shane, the general manager of Hancock Lumber's Casco mill.

Mike knew this was possible for the Casco mill because that's exactly what Hancock Lumber did at its largest mill: The company installed a conventional back-pressure turbine that generates electricity from the steep drop in steam pressure.

However, the conventional turbine design was too large and inefficient for this smaller application at the Casco mill.

Mike continued his search for a solution, but none of his known turbine options were adequately sized for his mill—until he found a promising option: a turbine developed by NLine Energy.



▲ A plug-and-play, skid-mounted turbine that is easily piped into existing steam systems.

Project Statistics

Species	Eastern white pine
Sawmill Output	35 MMBF/year
Primary Boiler Fuel	Biomass
Pressure Drop	270 psig to 30 psig
Steam Flow	10 MLbs/hour
20-Year GHG Savings	24,300 tons
Annual Generation	2,000,500 kWh
Generation Capacity	275 kWe
Year Installed	2022
Simple Payback	< 3 years

Where There's a Will, There's a Way

NLine Energy's steam turbine is a compact energy recovery system that works by generating electricity from the pressure and flow energy previously wasted through a steam system's pressure-reducing valve.

"We were so happy to find NLine Energy's turbine," said Mike. "One thing that makes this turbine so unique is that it's much smaller in size than traditional turbines. It's that smaller size that makes the turbine perfect for our Casco mill."

Once engaged, NLine's team began the installation of the steam turbine. Instead of having Hancock Lumber work with a handful of contractors who would be responsible for different aspects of the installation and implementation, NLine streamlined the entire project and handled everything from start to finish to ensure success.

"Now that we've found an efficient turbine that fits our application at the Casco mill, our goal is to offset electricity usage by twenty-five percent. That amounts to roughly \$125,000 per year," said Mike. "It will take a while for us to get there, but I'm sure that we will."

In fact, Hancock Lumber is so convinced of the success of the project, it's installing steam turbines in its third mill.



If you are looking for a turbine that fits any sized facility, NLine's steam turbine is a **great solution**. I recommend it.

Mike Shane, General Manager

Results

Suitable for Applications of All Sizes

The **steam turbine is a robust addition** that recovers energy that would otherwise be wasted. It's compact, efficient, and capable of being installed in any facility.

Turnkey Process

The installation of the steam turbine was a turnkey process for Mike and Hancock Lumber. **NLine handled everything** relating to the installation from design to commissioning and resolved any issues that arose.

Financial Savings

The steam turbine delivers an **outstanding return on investment**. This installation is projected to pay for itself in less than three years.