

## Assessment Reveals Potential Savings of \$63,000/Year for Paper Company

Finch Paper LLC specializes in uncoated paper for digital and traditional printing markets. They employ over 650 people and manufacture more than 250,000 tons of paper per year from its integrated pulp and paper mill in Glens Falls, New York. Finch was founded in 1865 as a saw mill, lumberyard and quarry operation on the upper Hudson River and began papermaking operations in 1905. Finch has had an environmental stewardship commitment right from the beginning when their founders recognized that the papermaking business could only be sustained with healthy forests.



### Client Challenge

In an industry where production relies on sustainability, finding the “better way” is a constant process. Pulp and Paper manufacturers, like Finch Paper, are continually looking for more efficient and sustainable operations. Finch Paper turned to NYSP2I for an analysis of two areas within their operations: ammonia recovery and heat recovery.

Finch utilizes an ammonium bisulphite process to make offset and digital papers. They currently use 30-50 tons per day of ammonia, an expensive raw material, in their production process resulting in approximately 4 tons in their waste stream. Finding a way to cut down on this hazardous waste would not only lower Finch’s raw material costs, but lower negative environmental impacts as well.

The original method that Finch and NYSP2I explored for ammonia recovery was a steam stripping process. After analyzing the projected costs, NYSP2I found that it would not be economically feasible for Finch to use this method as the implementation costs would outweigh the potential operational savings. The logical next step for the assessment was to look at alternative technologies including ion exchange, adsorption on activated carbon, and membrane filtration.

### NYSP2I Solution

To address heat recovery, an energy analysis was performed on Finch’s biomass boiler scrubber. Finch uses a biomass boiler to produce steam for production. The flue gas that is produced by the boiler is also used to preheat makeup water and combustion air. Approximately 49% of the company’s total energy use is generated from waste biomass and other renewable sources. The objective was to determine whether an energy savings opportunity exists by recovering heat from the scrubber system.

### CLIENT CHALLENGE

- Finch currently uses 30-50 tons of ammonia per day to make paper, which results in 4 tons of waste into their stream. They wanted to decrease this waste to cut both cost and environmental impact

### NYSP2I SOLUTION

- NYSP2I’s Direct Assistance energy analysis to assess heat/ammonia recovery

### RESULTS

- Steam stripping process was not found to be profitable, however, there is an opportunity for a two-stage membrane filtration system to be further evaluated to determine whether ammonia could be cost effectively recovered
- Another identified opportunity was energy analysis to recover heat from the wet scrubber water loop. This recovered heat could be used to heat the plant’s hot water line in the summer and help to maintain the warm water loop in the winter. Potential savings were calculated to be 159,344 therms per year for an annual cost savings of approximately \$63,000.



BOOK publishing

### Results

NYSP2I determined that steam stripping was not economically feasible for Finch's operation. The cost of the steam required for the process exceeded the value of the recovered ammonia. However, NYSP2I found that a two-stage membrane filtration system may be a good option and suggested this be evaluated further to determine whether ammonia could be recovered cost effectively as there was still a potential for ammonia savings of \$2,000/day.

An opportunity was also identified through the energy analysis to recover heat from the wet scrubber water loop. This recovered heat can be used to heat the plant's hot water line in the summer and help to maintain the warm water loop in the winter. Potential savings were calculated to be 159,344 therms per year for an annual cost savings of approximately \$63,000. Given an estimated capital investment of \$91,397, the simple payback period for the project was estimated to be less than 2 years.

## TESTIMONIAL

"As part of our efforts to operate and practice responsible and sustainable forestry, NYSP2I provided in depth analysis on the viability of several projects to recover heat from the wet scrubber recirculation loop in place of low pressure steam and reduce material usage and nitrate discharges. While not all projects are economically feasible at this time, NYSP2I identified operational changes for the Aerator Basin that reduce the amount of nitrates being discharged to the Hudson River, which has resulted in lower energy costs and contributed to the goal of lowering our TRI ranking in New York State."

- Finch LLC

## NYSP2I PARTNERS

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