



# insulation

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outlook

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## The **POWER** of Energy Efficiency

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**Future Generation, p. 4**  
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Insulation, p. 12 and 24**



## Energy Appraisals: Invest in Efficiency

In this tough economy, who doesn't want to reduce their energy bill, especially if the payback period is short and the return on investment large? Across the country, nearly 800 Certified Insulation Energy Appraisers are surveying facilities and calculating how much energy and greenhouse gas emissions customers could save by repairing, replacing, or upgrading their mechanical insulation. Following are two examples of how the Insulation Energy Appraisal Program (IEAP) benefits everyone involved.

# Appraisal Adds to Paper Mill's Bottom Line

*By Mark Reed*

A paper mill in Central Maine was looking for ways to stay competitive in this tough economy by maintaining the same production while reducing energy costs. A mill-wide energy survey had recently identified the steam system as a source of energy-saving opportunities.

While visiting the mill, Zampell's team noticed bare steam and condensate piping going to unit heaters and realized that adding mechanical insulation to the piping could achieve significant energy savings. The team discussed their ideas with the mill's energy manager, and he agreed to look at the survey results. He indicated that if the return on investment (ROI) fell within 1-2 years, he would be able to go ahead with the insulation project. As a Certified Insulation Energy Appraiser with Zampell Companies, I met with the mill's energy manager to determine the appraisal's scope: steam and condensate piping to the plant's unit heaters.

After gathering the needed process and cost data and measuring the piping, I used the 3E Plus® software to quantify potential improvements in energy savings, greenhouse gas emissions, and overall cost savings. The 3E Plus program is designed to calculate the thermal performance of both insulated and uninsulated piping, ducts,

and equipment; translate Btu losses into actual dollars; and calculate greenhouse gas emissions and reductions. All appraisers receive training in the use of 3E Plus as part of the National Insulation Association's (NIA's) Insulation Energy Appraisal Program (IEAP) certification process.

My appraisal report documented:

- Energy costs and Btu losses with existing steam and condensate system insulation
- Potential fuel cost savings and Btu savings with an insulation upgrade
- Potential environmental impact of reduced greenhouse gas emissions from the increased energy savings and reduced fuel consumption.

I then met with the mill's energy manager to review the insulation option and payback scenarios. The survey demonstrated significant savings, as highlighted in the simple ROI summary in Figure 1, page 26.

The IEAP survey quantified the energy and cost savings, as well as presenting a payback scenario that exceeded the energy manager's criteria. He was surprised that the savings were so significant, since the unit heaters only run for 7 months of the year. He said that



**Northeast U.S. Paper Mill Energy Efficiency Project—Thermal Insulation ROI Analysis**  
**Steam & Condensate to Unit Heaters**

<b>Estimate Number</b>	<b>Equipment Description</b>	<b>Inventoried Areas- LN. FT.</b>	<b>Energy Savings MMBtu/YR</b>	<b>Cost to Operate As Is Condition</b>	<b>Cost to Operate After Insulation</b>	<b>Annual Savings</b>	<b>Cost to Insulate</b>	<b>ROI in Months</b>
9960	<b>Steam &amp; Condensate to Unit Heaters</b>	1090	1,770,000,000	\$36,715	\$2,744	\$33,971	\$29,492	10.4
<b>TOTAL PROJECT</b>		1090	1,770,000,000	\$36,715	\$2,744	\$33,971	\$29,492	10.4

while he knew insulation was important, it was always hard to put a cost on it. He added that being able to quantify the savings so they can be understood by the operators as well as the accountant is a big help in this economy.

What started as a routine visit to a client and noticing some bare steam

pipng ended with the Zampell team using the tools and training from NIA's IEAP to create a win/win scenario for their customer: reduced steam load and significant cost savings. ☺

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