



**How to Give Energy Savings Meaning?**

Taking another trip down music memory lane... Some songs' meanings get twisted and become an urban legend. One song that comes to mind is "In the Air Tonight," Phil Collins's first solo single, which *wasn't* written about the singer's brush with a man who refused to save a drowning swimmer; and, according to Collins, he most definitely didn't invite the man to stand front row in a concert to be verbally berated during his performance of the song. Instead, "In the Air Tonight" is simply a tense, introspective look at Collins's divorce from his first wife. Collins swears by the story that he pulled together the lyrics in a snap during a studio recording session and laughs off the rumors swirling around the origins of "In the Air Tonight." He admitted to the BBC that "What makes it even more comical is when I hear these stories which started many years ago, particularly in America, of someone coming up to me and say[ing], 'Did you really see someone drowning?' I said, 'No, wrong' ... This is one song out of all the songs probably that I've ever written that I really don't know what it's about..."

So, what does explaining meaning have to do with insulation? Our NIA team has been preaching that our industry needs to provide context and meaning for "boring" numbers like BTUs, CO<sub>2</sub>, KWs, and pounds of steam. As mechanical insulation is used at higher temperatures, it delivers high-impact savings and sustainability benefits! How can we best give meaning to these terrific benefits? In my recent presentation, I shared an EPA website (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) that shows insulation's results against various other technologies for CO<sub>2</sub> reduction.



One relevant example really resonates in our messaging: Offsetting 9 tons of CO<sub>2</sub> produced by a 2.7L truck driven 20,000 miles can be achieved by applying just 2" of pipe insulation on about 8 feet of 4" bare pipe running at 350°F. (Go to <https://vimeo.com/639933994> to watch a video illustrating this example.) Uninsulated, each foot of the pipe loses 1,460 BTUs per hour! But what does that mean? In a year, these 8 feet of pipe lose 102,300,000 BTUs. That is a lot to take in, but an apt description is that each BTU equals the amount of energy released by burning a match. Imagine more than 100 million burning matches.

Let's give this some context. I compared that 102 million BTUs to the annual electricity usage in our 3,600 sq. ft. home in Charlotte, North Carolina. A kilowatt hour of electricity is equal to 3,412 BTUs. Our home uses, on average, about 1,000 kilowatt hours each month, equating to 41,000,000 BTUs in a year. Using the uninsulated 8 feet of pipe in the energy savings example above equals the equivalent of more than the annual electrical energy consumption for two houses! Now that is context we can visualize.

But let's take it a step further and give context with steam to a 10" Viking® Process Pump with two 4" flange sets using steam at 350°F operating all year long (8,760 hours). Believe it or not, the surface area of this one pump is about 16 square feet. That is about the same surface area of the 8 feet of 4" pipe with 2" of pipe covering example above! In running the energy calculations, this one uninsulated pump loses 122,000,000 BTUs of energy—the equivalent of 3 homes! By simply adding a removeable 1.5" insulated cover to this pump, the energy use would be reduced by 110,000,000 BTUs. That is a lot of lumber saved in matches!

In 1998, NIA published an article on a Georgia Pacific (GP) plywood plant in Madison, Georgia. The

plant insulated 1,500 feet of saturated steam lines running at 437°F with 2" of fiber glass pipe covering. By replacing 70 steam traps, they also gained a 10% condensate return. The results? GP reduced its steam load/usage by 6,000 pounds/hour. GP stated that insulating their lines and replacing the steam traps saved them 7,200,000 BTUs per hour! That's cool—but what gives this relatable context? By upgrading their insulation, they saved 63 billion BTUs a year and offset the electrical energy use—drum roll please—of 1,537 homes!

The idea behind all this math is to give context to important mottos we have at the National Insulation Association: "Reduce Before You Produce," "The Cheapest Form of Energy Is the Energy You Don't Use in the First Place—Insulation Works!" Let's as an industry say "Na Na, Hey Hey, Goodbye" to wasted BTU loss through proper insulation! (More on that song next month.)

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