



# Isn't it time we acknowledge how insulation truly works?

**NIA** | National Insulation Association®  
THE VOICE OF THE INSULATION INDUSTRY™

I was reminded of this when trying to help in the kitchen over the holidays as I pulled cookies out of the 350°F oven. I inadvertently touched the cooking grate without an oven mitt and felt that sensation we all have felt before: Ouch! We all know that an oven mitt provides a layer of insulation between your hand and the hot surface you're touching. It's a universal truth: if you don't want to get burned, insulate yourself from it. Burn protection and personnel protection are prevalent reasons to insulate equipment and systems. While burn protection may have been the goal, the insulation will provide the owner additional benefits just because it is installed.

The main focus of this column is one of its key benefits: reducing energy use and carbon emissions. Recently, I read a Wall Street Journal article titled, "How Can We Remove Carbon from The Air?" It was an excellent read on the pros and cons of various CO<sub>2</sub> reduction efforts. Emissions-mitigating technology falls into two main categories: point-source, which reduces carbon at the source and negative emissions technology,

also known as direct air capture, which reduces existing carbon in the atmosphere.

## Rodney Dangerfield: Insulation gets no respect

What the Wall Street Journal article did not cover was using insulation to reduce CO<sub>2</sub> emissions by reducing demand through energy conservation. Few sources describe lowering energy demand to reduce emissions. Ron King, a past president of the NIA, once wrote an article that is still true today, "Insulation is the Rodney Dangerfield of the construction industry: It receives very little respect and is taken for granted."

Mechanical insulation is a self-paying superhero, delivering energy and emission reductions for its lifetime. Adding just 2 inches of fiberglass insulation to an uninsulated four-inch diameter pipe, operating at 350°F, cuts both energy and emissions drastically. The loss in energy drops from 1,462 Btu per hour to 71 Btu per hour per lineal foot, resulting in reduced energy required to produce the heat. On top of that, that same linear foot of insulated pipe saves over a ton of CO<sub>2</sub> per year.

The UN Intergovernmental Panel on Climate Change (IPCC) said there are 12 categories of negative emissions technology, including afforestation and reforestation, soil carbon sequestration and direct air capture and storage. But what about point-source? Special equipment installed at the emission source to capture the CO<sub>2</sub> is typically point-source.

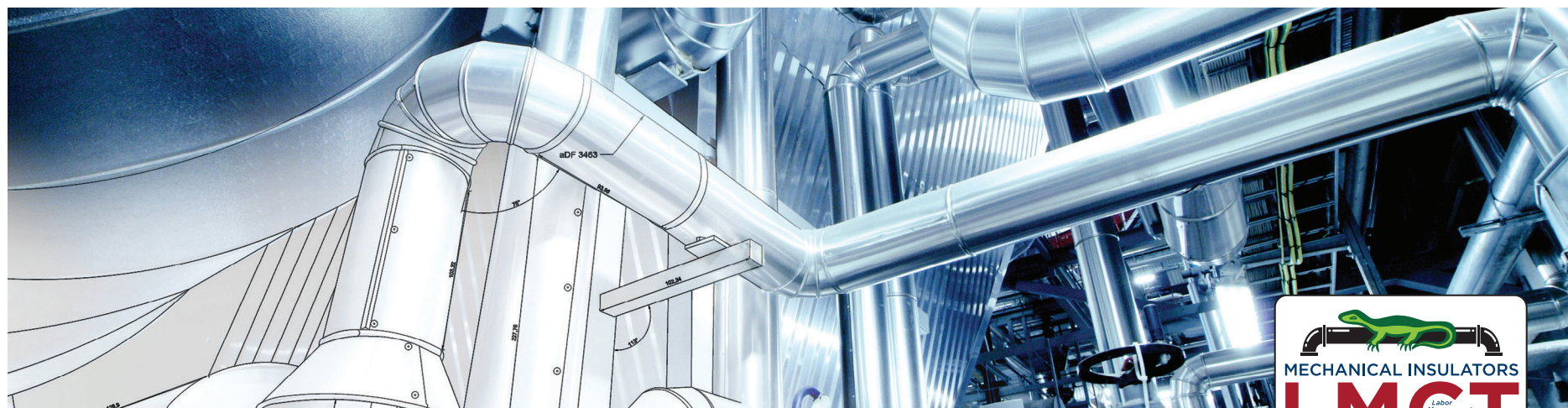
Mechanical insulation is a product that should be referred to as point-source carbon capture. A ton of CO<sub>2</sub> not generated because of properly insulated mechanical equipment is a ton of CO<sub>2</sub> that is not in the sky. Mechanical insulation has a high impact on reducing energy usage, mainly because it's used at higher temperatures. The mechanical insulation industry often says, "Insulate: the cheapest form of energy is the energy you don't use in the first place."

The current goal of the U.S. is to achieve net-zero GHG emissions by 2050 — a path that starts with companies reducing emissions as much as possible through conservation and new technologies. In the last issue, I outlined six projects, with an average cost of about

\$1,600 per ton of CO<sub>2</sub> removed, excluding operating costs. Installing mechanical insulation is much cheaper than that. For example, Shannon Global Energy, a removable cover fabricator based in Buffalo, New York, stated that installing a 1.5-inch-thick removable insulation cover on a 4-inch gate valve operating at 350°F can save the owner 2 tons of CO<sub>2</sub> emissions per year. The cost was just \$600, and the impact was a 90% reduction in BTUs. This example shows a removal cost of just \$300 per ton of CO<sub>2</sub>. Can you find better technology than that? In addition, the removable cover that saves 2 tons of carbon emissions in 2024 will save the same amount every year thereafter — at zero operating expense.

Mechanical insulation has earned the respect it deserves as a point-source carbon capture product. Amid the groundbreaking technology being developed worldwide to remove or reduce CO<sub>2</sub>, mechanical insulation already prevents CO<sub>2</sub> generation. It's proven, cost-effective and saves energy dollars.

**For more information, visit [insulation.org](https://insulation.org).**



## Reduce Energy Usage, Save Big Money

### Is your Mechanical Insulation 100%?

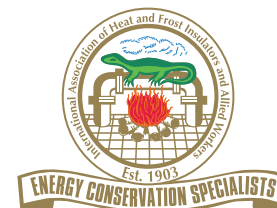
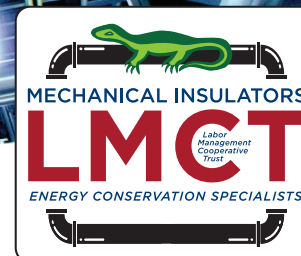
- Reduce Energy Consumption
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