



Study confirms insulation reduces energy usage, emissions

An independent study has determined that even using one type of insulation on mechanical systems results in massive energy savings and corresponding GHG and carbon emission reductions. Businesses and governments should prioritize insulation projects as a first step in achieving energy and carbon reduction goals.

Mechanical insulation encompasses all thermal, acoustical and personnel safety requirements for mechanical piping and equipment and HVAC applications. The operating or service temperatures can range from cryogenic levels -423°F to above 1,000°F.

One of the main objectives of the study was to determine how much energy could be saved and GHG emissions reduced in the commercial/building and industrial market segments by using mechanical insulation on systems that operate at high temperatures. The study's results surprised even the insulation industry because its scope was so restricted. It only examined some types of ready-to-use mechanical insulation used on pipes and equipment operating in a narrow temperature range — only between 150°F and 800°F.

When examining these results, imagine how large the impact could really be if you implemented insulation on all mechanical systems, instead of just looking at this one example.

The magnitude of mechanical insulation's savings

Cumulative findings	
85.9 trillion	Savings — kbtu
278.3 billion	Dollar savings
16.6 trillion	CO ₂ savings (lbs)
7.5 billion	CO ₂ savings (mt)

What do the study's results compare to? (See chart on right)

Mechanical insulation systems are not a one- or five-year initiative. Properly designed, installed and maintained mechanical insulation systems will last longer than the 11-year span upon which the study's cumulative results are based, and may last the lifetime of the facility.

Why is mechanical insulation more important than other types of insulation that

would also deliver energy savings and emission reduction benefits? The answer is related to temperature differential and heat loss/gain. The greater the temperature differential between ambient and service/operating temperature, the greater the opportunity for energy savings and reduction in carbon emissions. Accordingly, mechanical insulation applications, on a unit basis compared to other insula-

tion segments, will yield much greater savings.

Plus, if a mechanical insulation system saves 1 mt of carbon emissions in 2024, it will save the same amount in 2025, 2026 and every year thereafter, often for the life of the building or equipment. It can make a lasting difference. Taking small steps can lead to significant, large-scale results.

For more information, visit insulation.org.

Comparisons to insulation's results according to EPA's GHG calculator	
GHG emissions from:	
Gasoline-powered passenger vehicles driven for 1 year	1.7 billion
CO ₂ emissions from:	
Homes' energy use for 1 year	951 million
Barrels of oil consumed	17.4 billion
Coal-fired power plants in 1 year	2,020
Natural gas-fired power plants in 1 year	18,962
GHG emissions avoided by:	
Wind turbines running for 1 year	2.1 million
Incandescent lamps switched to LEDs	286 billion
Carbons sequestered by:	
Acres of U.S. forests in 1 year	9 billion



Reduce Energy Usage, Save Big Money

Is your Mechanical Insulation 100%?

- Reduce Energy Consumption
- Save Operating Costs
- Reduce Carbon Footprint
- CUI Programs
- Mechanical Insulation Energy Audits
- ROIs – 6 months to 2 years



Explore your Mechanical Insulation Solutions

- Most Proficient Insulator Workforce in the Country
- Professional Experienced Contractors
- Capital Projects
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- Exceptional Safety and Health Records

It's time for you to rethink mechanical insulation!



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