



NIA National Insulation Association
REDUCE EMISSIONS BY PRIORITIZING INSULATION™

The cheapest form of energy? The answer may surprise you

If you want to experience information overload, just Google “what is the cheapest form of energy.” Energy is generally split into two buckets: renewables and non-renewables. Some renewables are solar, wind, hydroelectric, biomass, tidal and geothermal. Non-renewables include coal, oil, natural gas and nuclear, although nuclear is a zero-emission source. To meet its 2030 commitment under the Paris Agreement — to reduce national GHG by 50-52% below 2005 levels — the U.S. needs to transform the way it generates electricity. And it must do so rapidly.

What is the cheapest form of energy? A great place to search for the answer is the IEA World Energy Outlook 2022. Released in October 2022, it is very detailed and includes more charts than Ross Perot used in his 1992 presidential campaign. It predicts that by 2030, due in large part to the U.S. Inflation Reduction Act, annual solar and wind capacity additions in the U.S. will grow 2.5 times over today’s levels. Renewables now represent the cheapest source of new electricity in most markets, but the pace of their expansion depends upon the retirement

or reuse of existing sources of electricity generation as well as on new capacity. Therefore, it largely rests in the hands of policymakers.

Global Electricity Review, released by London-based think tank, Ember, in April 2023, showed that the carbon intensity of global electricity generation fell to a record low of 436 gCO₂/kWh in 2022 — the cleanest-ever electricity. It said this was due to record growth in wind and solar, which reached a 12% share in the global electricity mix, and that 2022 would be remembered as a turning point in the world’s transition to clean power. Electrification also accelerated, so there were more heat pumps, more electric vehicles and more electrolyzers. Investment in low carbon energy technology surpassed \$1 trillion in 2022 for the first time, which matched the investment in fossil fuels.

Lazard, a global financial advisory and asset management firm, issued a document in April 2023, Levelized Cost of Energy Analysis. The comparative study addresses adding various generation technologies on a dollar to MWh basis — including sensitivity

ties for U.S. federal tax subsidies, fuel prices, carbon pricing and cost of capital. The report shows utility scale solar and onshore wind as the cheapest forms of energy to produce and add to the grid.

Enter the superhero

One of the major benefits of using renewable energy is that it does not produce any air-polluting emissions to generate power. As the world embraces new or reinvigorated energy sources, there is one form of energy that is the clear winner as the cheapest form of energy: the energy you don’t use in the first place. Insulated items use less energy and therefore don’t have as many GHG and carbon emissions. Mechanical insulation provides a high impact for reducing energy usage, mainly because it’s used at higher temperatures. I wrote in my July/August article that carbon offsets, slowing deforestation and clean electricity generation are all good, but the reality is, the world also needs to cut emissions.

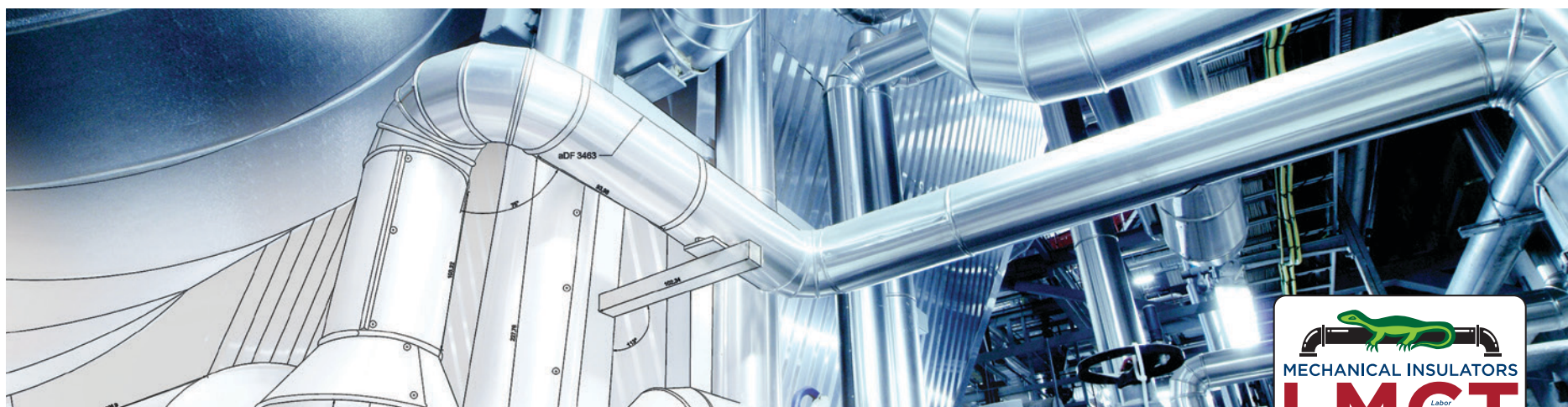
We need a superhero that delivers both energy and emission cuts. That is where

mechanical insulation enters the picture. Adding two inches of fiberglass insulation to an uninsulated four-inch diameter, 350°F pipe cuts both energy and emissions. The energy loss drops from 1,462 Btu per hour to 71 Btu per hour per lineal foot, translating into less energy needed. To help visualize this, one Btu is about the same amount of energy released from burning a single match.

Of all the research I read on energy demand, I only saw one article, by European publishing platform Innovation Origins, that mentioned reductions in demand. It stated that while the growth of wind and solar power is impressive, there are still challenges and opportunities in energy transition. It added that more growth is needed from all other clean sources of electricity, and more attention must be paid to energy efficiency to avoid rampant growth in electricity demand.

I could not agree with them more on the need for energy efficiency. I suggest insulation as a way to use less energy — resulting in less emissions released in the first place.

For more information, visit insulation.org or email president@insulation.org.



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