



CO₂ removal: Seek the forgotten technology

NIA National Insulation Association
THE VOICE OF THE INSULATION INDUSTRY™

We in the mechanical insulation industry sometimes refer to our product as “forgotten technology.” We say this because it is quiet and unassuming, does not have a fancy name — like direct air capture — and is not labeled as the “next big thing” in helping companies or governments achieve their sustainability goals. But when it is installed correctly, the benefits of mechanical insulation are instantaneous and continuous — especially when it is used on higher temperature applications. Can you say “steam?”

Many entities are trying to reduce their carbon footprint. If they cannot do it on their own, companies turn to carbon offsets. Carbon offsets are tradable “rights” or certificates linked to activities that lower the amount of CO₂ already present in the atmosphere. By buying these certificates, an entity, such as those listed below, can fund projects or technologies that fight climate change by removing carbon. In this way, the certificates offset the buyer’s CO₂ emissions with an equal amount of CO₂ reductions somewhere else. Most agree it would be very difficult to meet ambitious emission goals without large-scale carbon removal.

Negative emission technologies

Technologies for implementing carbon removal are called negative emissions technologies (NET). Various NETs for CO₂ removal (CDR) are being pursued to reduce emissions. However, most are not yet effective at scale and are expensive. A sampling of technologies and companies listed here bring cautious optimism to CDR models:

- Climeworks direct air capture and storage in Iceland — \$13 million to capture 4k mt/yr.
- Vaulted Deep biomass slurry injection in Kansas — \$58 million to reduce 50k mt/yr.
- Charm Industrial biomass carbon removal and storage in California — \$53 million to reduce 23k t/yr.
- Tata Chemicals Europe carbon capture to sodium bicarbonate in the U.K. — \$23 million to convert 40k mt/yr.
- Lithos Carbon enhanced rock weathering in the U.S. — \$57 million to absorb 50k t/yr.
- Heirloom Carbon limestone CO₂ direct air capture in the U.S. — \$26 million to absorb 27k t/yr.

- CarbonCapture swappable sorbent cartridge in the U.S. — \$20 million to absorb 15k t/yr.

Other technologies involve planting new forests, storing more carbon in our soil, ocean upwelling and downwelling and managing agricultural lands to increase soil carbon content.

The forgotten technology

Offsets are fine, but the reality is the world needs to cut emissions. While carbon removal might play an important role in fighting climate change, it is not a suitable replacement for cutting GHG emissions. Many environmental professionals worldwide are concerned that companies and countries use offsets as a “Get Out of Jail Free” card to avoid reducing their carbon emissions. As stated in a previous column: “To limit global warming by just 2.7°F, the planet must reduce current GHG emissions by 45% before 2030. A stepwise approach is no longer an option. The international community is falling far short of the Paris goals.”

Reducing emissions is where mechanical insulation, the forgotten technology,

comes into play. The mechanical insulation industry’s message is: The cheapest form of energy is the energy you don’t use in the first place: Insulate. A BTU of energy not used to elevate a piping system fluid to 350°F at an industrial facility is a BTU saved from being produced in the first place, thus saving emissions and dollars. It is that simple. Adding just two inches of fiberglass insulation to an uninsulated 4-inch diameter pipe at 350°F reduces energy loss per linear foot from 1,462 BTU/hour to just 71 BTU/hour. Remove enough BTUs and your company may be able to sell your own carbon offset certificates as a new revenue source.

The mechanical insulation industry believes that our products fit that mold of good, old-fashioned technology. The technology behind it is simply trapping air. Howard J. Herzog, senior research engineer with the MIT Energy Initiative, has said that there is no 100% solution to minimize emissions. Rather, we need a lot of 10% and 20% solutions. Mechanical insulation is part of the solution to reducing emissions.

For more information, visit insulation.org.



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