

The Right Technology Can Help You Meet Several CSR Goals for Sustainability

Determining which technologies to use to meet corporate social responsibility (CSR) targets, with a goal to specify across all operations, is a critical decision that can yield substantial returns to the bottom line, but the process is unwieldy and often the corporate channels for implementing new technologies are not well-defined, whether in terms of budget or in terms of the approval process.

There are many options you can use for energy reduction goals, such as LED lighting, boiler economizers and thermal insulation coatings (TICs), but determining which will give you the best ongoing return on investment, shortest payback and longest lifespan can take some time.

For example, the payback period for installing LED bulbs in a factory can be in the range of three years (Ref 1), but the payback period for installing a thermal insulation coating (TIC) in a factory to insulate heat process equipment can be 6-18 months (Ref 2). That's a big difference in the time to recoup your initial investment.

To make the right decision on the best technologies to implement for improved company sustainability, you also need to



Corrosion-resistant field study on thermal insulation coating by Synavax™. No rust present, and no creep at the scored areas.

review where you use the most energy and which projects make the most impact. According to the US Department of Energy, 45.3% of energy used in an industrial facility is for process heating, while the HVAC/Lighting use about 8.6%. So there is a strong case to be made for a technology that can insulate heat process equipment, where most energy is being consumed, and be used to hit multiple sustainability targets beyond just energy reduction.

Do you participate in the sustainability planning and implementation programs at your corporation? If so, you may want to review TICs, such as Synavax™ thermal insulation coatings.

Some of the main sustainability goals that you will see on many CSRs are:

- Energy Reduction
- Waste Reduction
- Lowering Carbon or GHG Emissions
- Improved Employee Health and Safety
- Water Use Reduction

The more targets you can positively impact with one technology, the lower your overall cost is for implementing a company-wide sustainability program. A unique thing about a thermal insulation coating, such as Synavax™ Heat Shield™ line of TICs, is that it can help you reach multiple sustainability targets, such as energy reduction, waste reduction, carbon/GHG emissions reduction and improved employee health and safety.

What most company leaders have in common when looking for sustainable technologies are intense time constraints having the dual responsibilities of running day-to-day operations and the mandate to improve sustainability and lower energy consumption in their focus of control from the production lines, to the power stations, to the actual physical plant itself.

Finding time to research and evaluate new technologies is a tremendous challenge

amidst the intense pressure to keep production lines running and optimized. Often times the only measures that are implemented are those that have been used for decades, such as mineral wool or fiberglass. Although these measures work, they can only go so far to impact the overall energy savings, emissions reduction and other costs savings for your operations.

How Energy Use and Emissions are Connected

According to the US Energy Information Administration (Ref 3), the key US energy-related carbon dioxide emissions sources are:

- Coal
- Natural Gas
- Petroleum
- Electricity
- Other combustion waste materials

There is a direct connection between energy use and carbon and GHG emissions.

Fossil fuels supply 82% of the primary energy consumed in the United States and are responsible for 94% of total carbon dioxide emissions (Ref 4).

Some Key Ways that TICs can Contribute to Energy and Emissions Reduction Goals

- Insulate boilers, steam pipes and other heat process equipment to reduce LNG, oil and coal use



Heat Shield EPX-H2O insulation coating (tinted blue) applied to steam pipe in chemical plant.

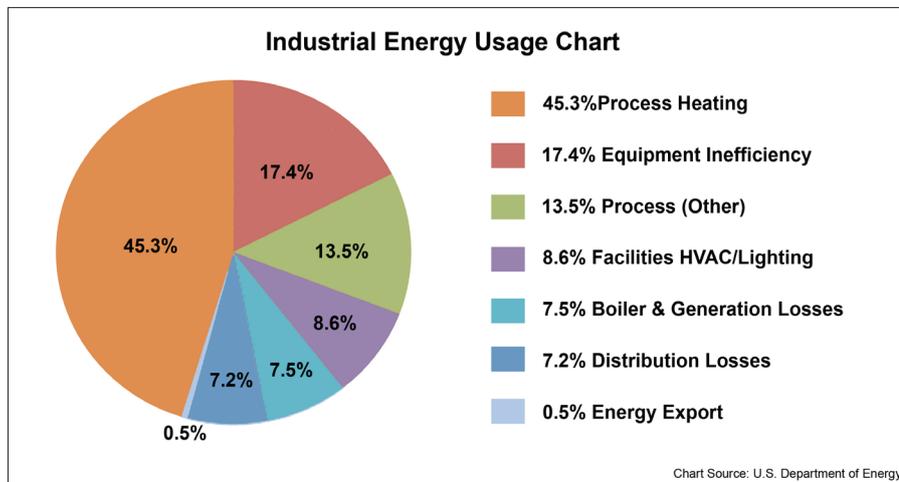


Chart of typical industrial energy use and how it is divided.

- Reduce the overall carbon footprint of manufactured goods by using less energy to manufacture them
- Easily insulate building walls and roofs to lower electricity used for heating and cooling and related carbon and GHG emissions.
- All our insulation coatings are low VOC, so using them won't negatively contribute to additional emissions into the atmosphere

Did you know that a simple project with thermal insulation coatings can equate to a reduction of 162 metric tonnes of GHG emissions annually?

Hospital Steam Pipe Insulation Study Synavax™ Heat Shield High Heat TIC

was used at a large hospital for steam pipe insulation. The application used an 8-coat coverage, which is approximately 8/1000th of an inch thickness and provided approximately a 110°F (61°C) temperature reduction, lowering the surface temperature from 302°F (150°C) to 192°F (88.9°C) degrees.

How this Equates to Meeting Carbon and GHG Emission Reduction Goals

For every 1,000 SF of steam pipe surface area insulated per the results above, the following is possible:

- Annual energy savings of 3,046.20 MMBtu/year
- Based on today's energy dollars, that is \$8,285.66 USD/year savings on liquid natural gas



Textile mill heat process equipment insulated with a clear high temperature thermal insulation coating as part of a company-wide sustainability project.

- Reduction of 162 Metric Tons of GHG emissions, according to the US EPA's greenhouse gas (GHG) emissions equivalency calculator. (Ref 5)
- Equivalent savings of 376 barrels of oil per year

Improved Employee Safety

Another CSR goal that can be met by insulating equipment is improved employee safety. Insulating hot equipment can lower the exterior surface temperature to a safe to touch range (typically about 140°F/60°C).

An insulation coating can also reduce the heat radiated into the working environment from a large piece of equipment like a boiler or industrial oven, thus reducing chance of heat stroke and related issues.

Reducing Waste with Corrosion and CUI Prevention

While anti-corrosion is not typically the first consideration when checking the list of corporate sustainability goals, it fits right into a key category – Waste Reduction.

Protecting your equipment from the damage of corrosion means a longer replacement cycle and less physical waste and monetary waste purchasing equipment before it is truly needed.

It costs less to protect your equipment that it does to have to replace it early due to corrosion-caused failure. In fact, corrosion under insulation costs an estimated \$2.5 trillion annually according to a study by NACE International, and implementing corrosion prevention can result in a global savings of 15-35% of that cost.

It is cost-efficient to use a TIC that also prevents corrosion for insulating equipment for a dual benefit. While they are sought after most for their powerful energy saving benefits, they are a concentrated, multipurpose technology that also prevents corrosion and corrosion under insulation (CUI).

Some Key Ways that TICs can Contribute to your Waste Reduction Goals:

- Preserve metal assets to reduce waste and the energy required to make new items.
- Aid in the refurbishing and reuse of tanks, pipes and other equipment.
- Prevent waste by coating your outdoor structures, including handrails, metal cages, awnings, statues and beams.

Conclusion

As you are sitting down considering the options for your corporate sustainability goals, it is important to review key factors of any technology you are considering, such as payback period, ongoing return on investment, lifespan and whether it can help you meet more than one of your CSR goals.

For plant managers, engineers and the increasingly important dedicated sustainability executives, finding the latest and most advanced technologies to try requires overcoming the trio of challenges surrounding time, money and risk. Thermal insulation coating technology can help you win on all three fronts. ■

References

- 1) Go GreenLED International <https://gogreenledinternational.com/pages/case-studies>
- 2) Synavax™ Thermal Insulation Coatings: <http://www.synavax.com/manufacturing-2/>

- 3) EIA <https://www.eia.gov/tools/faqs/faq.cfm?id=75&t=11>
- 4) EIA https://www.eia.gov/energyexplained/index.cfm?page=environment_where_ghg_come_from
- 5) EPA <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>



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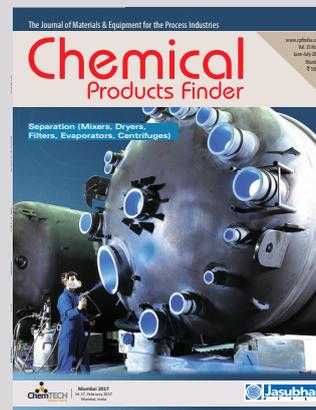
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