

Understanding **Decarbonization** and What it Means to Schools



Educators are wholeheartedly devoted to preparing kids for the future. You can help ensure that their future has a livable planet, too. Climate scientists today say that impactful environmental sustainability depends on widespread decarbonization.



Def. Decarbonization: The processes of preventing or reducing carbon gases from being released into the atmosphere, often as the result of burning fossil fuels.



A growing number of states and municipalities are putting regulations into place to motivate the adoption of decarbonization strategies in commercial buildings. It's the right thing to do and it doesn't have to be a burden. Financial support is available to help defray the costs including the Inflation Reduction Act, tax incentives and utility rebates, plus various grants and affordable loans.

Trane's 4 Pillars of Decarbonization

Trane organizes decarbonization into four pillars. Each one has big and small action items that you can implement to make a carbon difference. The items listed are just a few examples, rated by the typical level of cost and complexity.

1 = low 2 = moderate 3 = high



1. Improving energy efficiency

Using less energy produces less carbon emissions from power plants. Since energy efficiency saves money, this is an easy starting point.

Cost/Complexity

1 2 3

1 2 3

1 2 3

1 3

Energy Efficiency Actions

- Add building automation to avoid using energy when it's not needed
- Switch to high-efficiency HVAC systems
- Upgrade to newer LED lighting and other energy saving measures
- Make structural modifications to reduce heating and cooling loads

BONUS Lower energy bills.



3. Supporting the transition to carbon-free energy

Engaging in solutions that prioritize solar, wind and other types of energy from sources that are natural and constantly replenished.

Cost/Complexity

1 2 3

1 2 3

1 2 3

Renewable Energy Actions

- Purchase renewable energy from the grid
- Add thermal energy storage to gain purchase and use flexibility
- Generate solar and wind energy onsite

BONUS Renewables are more cost effective and generate more jobs than fossil fuels.
(Source: United Nations Climate Action)



2. Electrification of heating

As the nation's power grid transitions to renewable energy sources, switching to electric heating reduces overall emissions.

Cost/Complexity

1 2 3

1 2 3

1 2 3

Electrification Actions

- Upgrade to heat recovery and hybrid dual fuel options
- Apply innovative approaches using heat pumps
- Add thermal energy storage to make electric heat practical in cold climates

BONUS Federal and state funding may cover the cost.



4. Prioritizing safe refrigerant use and handling

Minimizing potential greenhouse gas effects of refrigerants used in HVAC systems.

Cost/Complexity

1 2 3

1 2 3

1 2 3

Refrigerant Management Actions

- Transition to low global warming potential (GWP) refrigerants
- Monitor HVAC systems for potential leaks
- Hire trusted experts for proper on-site management and handling

BONUS Within 30 years, up to 57.15 gigatons of carbon dioxide emissions could be avoided from buildings and landfills.
(Source: Project Drawdown, Refrigerant Management. <https://www.drawdown.org/solutions/refrigerant-management>)

Every step matters. Let's work together to reduce the carbon impact of your schools. Trane combines energy-efficient equipment, control strategies and energy management services. We expertly bring it all together to form unique and innovative approaches that benefit schools, students and the planet.

Leverage your school decarbonization projects for STEM learning. Trane's K-12 education programs integrate with your curriculum, providing experiential learning about energy efficiency, sustainability and more—using your building as an example.