Decarbonization Strategy & Action Accelerator Program

This session will begin momentarily

TRIO™



Decarbonization Strategy & Action Accelerator Program

Module 3: Developing a Scope 1 and 2 Decarbonization Strategy

TRIO™



Anti-trust

Antitrust Statement

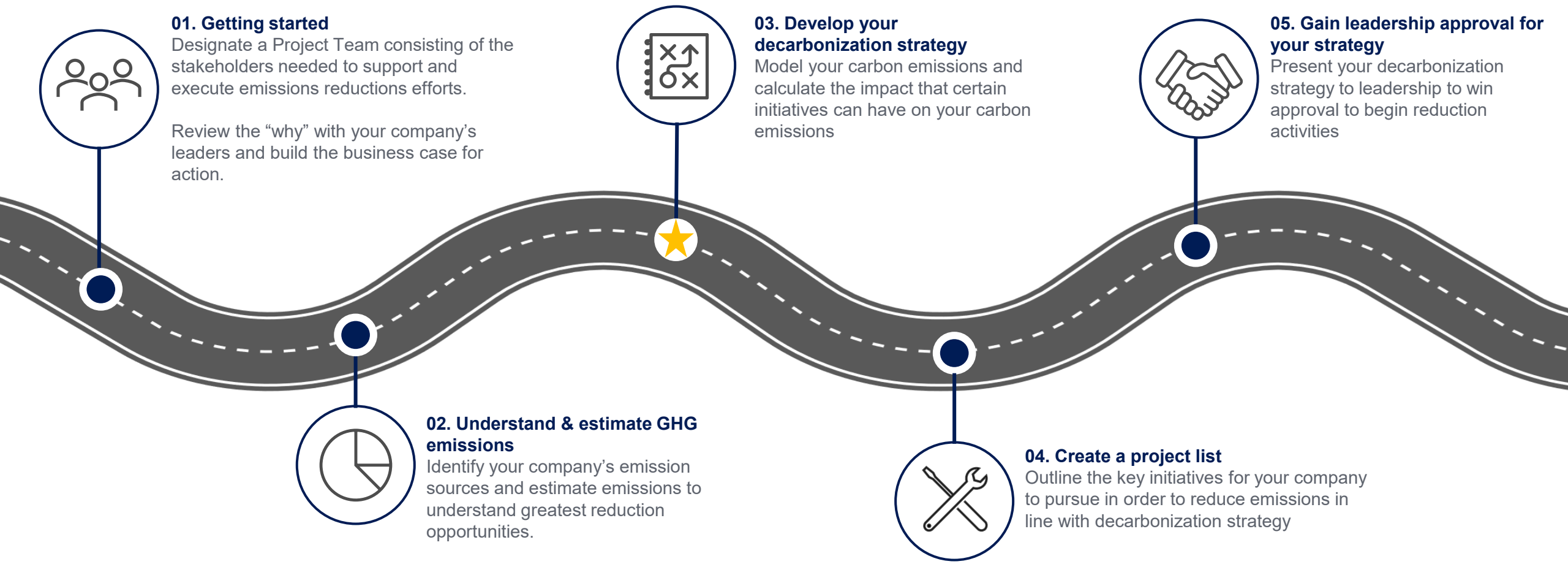
Trio is hosting the Accelerator for the purpose of providing suppliers guidance to developing a decarbonization strategy. It is intended to take place in full compliance with all applicable provisions of state and federal antitrust laws. These discussions will be conducted in full conformance with the Antitrust Guidelines (attached hereto). Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, terms of sale, division or markets, allocation of customers or any other activity that unreasonably restrains competition, including components of pricing such as vendor or contractor costs. It is the responsibility of every participant at this meeting to carry out this commitment.

Anti-trust Key Takeaways

- Avoid discussions of topics that could result in anti-competitive behavior
- "Off-Limits" items include, without limitation:
  - Any information that could be considered competitively sensitive, confidential, proprietary or a trade secret
    - Confidential contract or counter-party specifics
    - Inputs, data sources, formulas, algorithms or other information used in planning and forecasting analysis or trading activities
  - Pricing plans and strategies
- Immediately interrupt/object if improper topics arise

© Copyright 2026 Trio

Emission reduction pathway roadmap



01. Getting started
Designate a Project Team consisting of the stakeholders needed to support and execute emissions reductions efforts.

Review the “why” with your company’s leaders and build the business case for action.

02. Understand & estimate GHG emissions
Identify your company’s emission sources and estimate emissions to understand greatest reduction opportunities.

03. Develop your decarbonization strategy
Model your carbon emissions and calculate the impact that certain initiatives can have on your carbon emissions

04. Create a project list
Outline the key initiatives for your company to pursue in order to reduce emissions in line with decarbonization strategy

05. Gain leadership approval for your strategy
Present your decarbonization strategy to leadership to win approval to begin reduction activities

© Copyright 2026 Trio

Today’s objectives & agenda

1

Fundamentals

Review core principles for creating a decarbonization strategy

2

Insights

Explore foundations for strategy development and opportunities to reduce Scope 1 and 2 emissions

3

Implementation

Walk through strategy development section of the Decarbonization Strategy Modeling Tool



Fundamentals

Introduction to Scope 1 & 2 Strategy Development

© Copyright 2026 Trio

What is a decarbonization strategy?

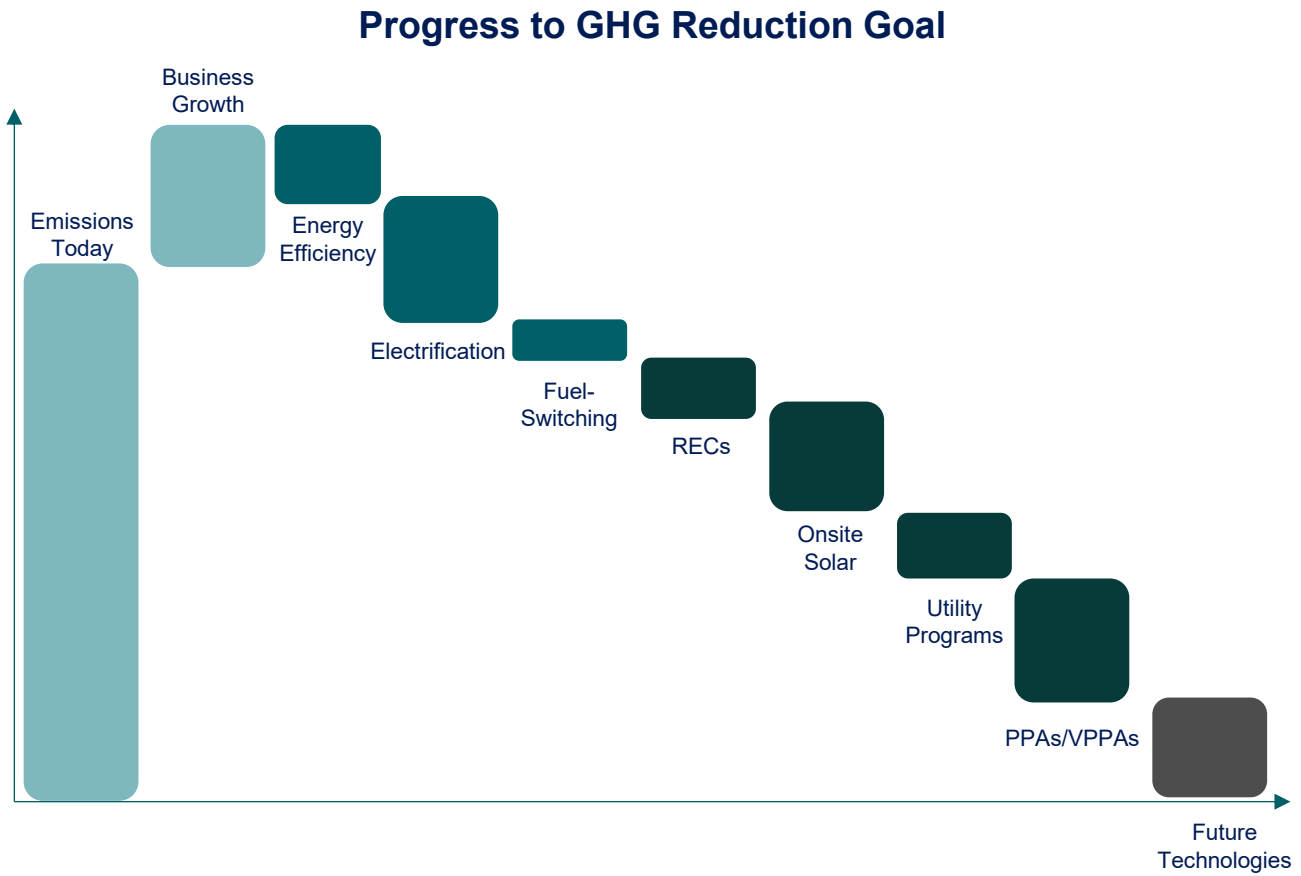
A roadmap for reducing or eliminating carbon emissions generated by or attributed to your business

Decarbonization strategies often:

- Require a combination of unique actions and levers to reduce your carbon footprint
- Are dynamic and evolve over time as organizational priorities and the general business landscape shifts

In the context of the modeling tool, the various levers you will model your strategy on will generally fall under three main buckets:

- **Energy Efficiency** – demand reduction through energy optimization and conservation measures
- **Electrification & Fuel Switching** – switching from fossil fuels to either electric or alternative fuels
- **Renewable Energy** – procuring green energy through Onsite Solar, PPAs/VPPAs, energy attribute certificates etc.

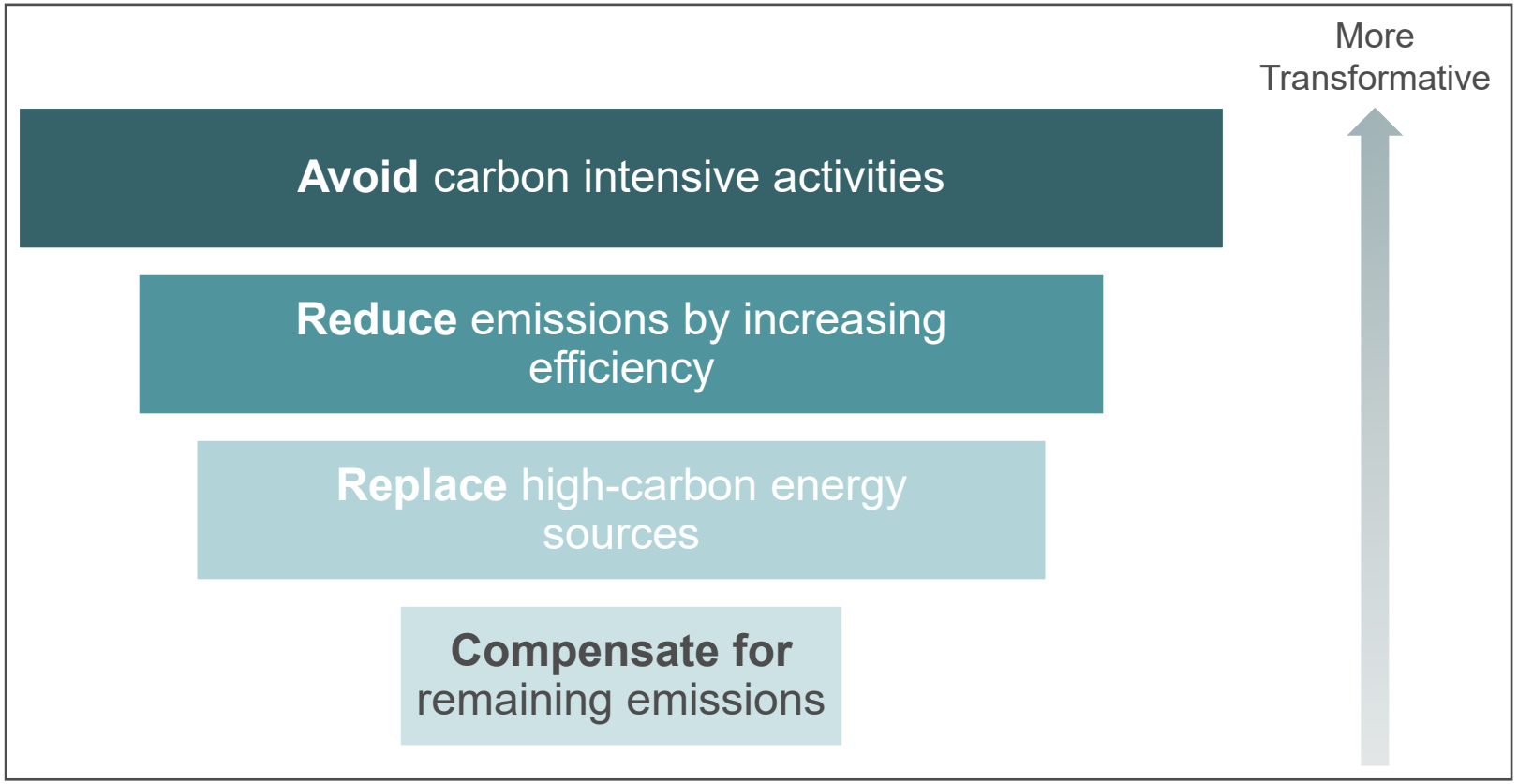


© Copyright 2026 Trio

Mitigation hierarchy

The Greenhouse Gas (GHG) mitigation hierarchy is a conceptual framework that provides methodical approach to addressing and reducing environmental impacts related to GHG emissions

The hierarchy encourages **focus on more transformative actions**, such as avoiding and reducing emissions, **before compensating for emissions**



© Copyright 2026 Trio

Insights

Strategy Foundations & Decarbonization Opportunities

© Copyright 2026 Trio

Key foundations for a decarbonization strategy

Emissions Data



Measure emissions using activity data to establish baseline

Identify emissions hotspots to understand the largest sources of impact and prioritize reduction efforts.

Use data to quantify the scale of the decarbonization opportunity.

Target Timeframe



Define near- and long-term targets to determine **by how much** and **how fast** emissions reductions are required

Use the target timeframe to align decarbonization strategy with organizational objectives.

Near-term: 5-10 years
Long-term: 10+ years, typically 2040 - 2050

Projected Business Growth



Forecast anticipated growth to understand how future operations may affect emissions and required reductions

Leverage Business-as-Usual growth metrics such as CAGR, production growth, or other operational forecasts

Corresponding workbook sheets

M2.0 - M2.3	M3.4	M3.5

© Copyright 2026 Trio

Developing a decarbonization strategy

There are many different approaches to developing a holistic strategy. One approach is to evaluate opportunities by facility type. This is how the Strategy Modeling Tool organizes strategy development.

Facility Type	Emissions Profile	Primary Emissions Sources	Priority Actions
Office & Commercial *Offices, Headquarters, Retail, Warehouse*	Scope 1: Low-Medium	Scope 1: Natural gas heating	**Electrify heating and improve building efficiency**
	Scope 2: Low-Medium	Scope 2: HVAC, lighting, and plug loads	
Energy-Intensive Operations *Manufacturing, Manufacturing and Warehouse, Laboratory, Data Center*	Scope 1: High	Scope 1: Process heat and hot water/steam generation	**Reduce energy and fuel demand through process optimization and efficiency**
	Scope 2: High	Scope 2: Production equipment, data center loads, and cooling systems	
Mobile & Temporary Operations *Fleet, Construction Site*	Scope 1: Very High	Scope 1: Fleet vehicles, mobile equipment, and generators	**Electrify fleets, identify fuel alternatives, and reduce fuel consumption**
	Scope 2: Low-Medium	Scope 2: EV charging and temporary site electricity	

© Copyright 2026 Trio

Cost considerations

- Decarbonization levers vary significantly in their CapEx, OpEx impacts, and payback profiles.
- A balanced strategy often combines low-cost efficiency measures with longer-term transformational investments.

Understanding your organization's **capital availability and appetite for financial risk** is critical to prioritization.

Decarbonization Levers	Capital Requirements	ROI Potential
Energy Efficiency Measures	Low - Medium	High
Electrification	High	Medium
Electrify Vehicles and Mobile Equipment	High	Medium - High
Fuel Switching	Low - Medium	Low - Medium
Onsite Solar	Medium - High	Medium - High
Offsite Renewable Energy Procurement	Low	Low - Medium
Scope 1 Carbon Offsets	Low	Often no ROI Potential

© Copyright 2026 Trio

Key assumption: Greening of the grid

Grid greening reflects the expectation that the electricity grid will become cleaner over time as utilities add more renewable energy and retire higher-emitting generating equipment.

Considerations of applying greening of the grid as part of decarbonization strategy:

- **Represents an external decarbonization lever** that is largely outside an organization's direct control and relies on projected grid decarbonization pathways.
- **Reduces Scope 2 emissions automatically** as electricity emission factors decline, even if electricity consumption remains unchanged.
- **Enhances the benefits of electrification measures** such as heat pumps and EV charging as the grid becomes cleaner.



Photo Source: Pembina Institute

© Copyright 2026 Trio

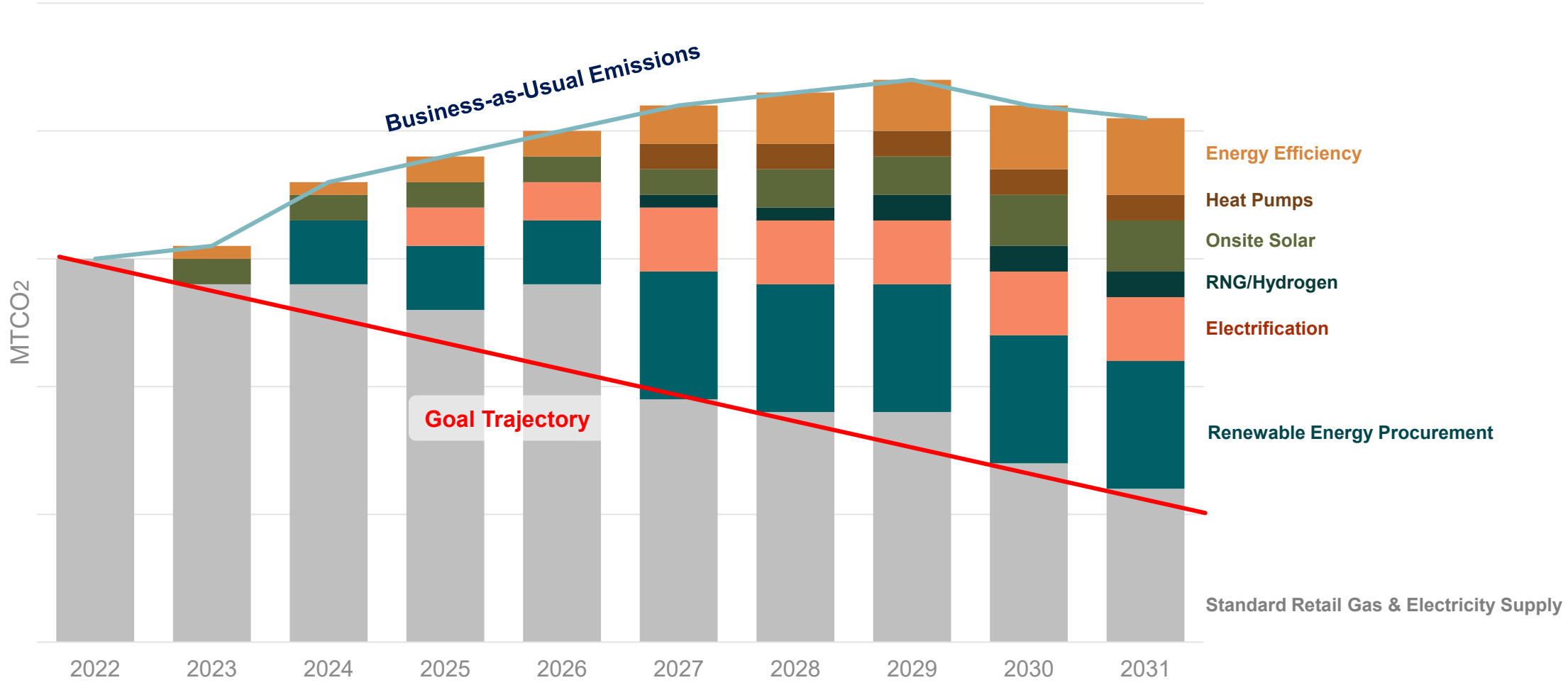
Implementation

Decarbonization Modeling Tool Walkthrough

© Copyright 2026 Trio

Developing a holistic strategy

The Decarbonization Strategy Modeling Tool will illustrate how multiple decarbonization levers can be layered to achieve your company's desired emissions reductions



© Copyright 2026 Trio

Looking Ahead

© Copyright 2026 Trio

Program Engagement

If you have not already, please submit the following items to the program inbox to receive credit towards certification:

- ✓ Confirmation you watched the Module Recordings
- ✓ Copy of the completed Module 1 HW 1: Securing Internal Buy-In
- ✓ Copy of complete Module 2 HW: Decarbonization Modeling Tool M2.0-2.3

Upcoming: 1-on-1 Strategy Review Sessions

- ✓ Complete Module 3 Homework and schedule a personalized decarbonization strategy review with Trio team

Program Inbox: hondagreenexcellence@trioadvisory.com



© Copyright 2026 Trio

Key Takeaways & Next Steps

Key Takeaways

- A decarbonization strategy helps ensure your efforts are systematic, impactful, and aligned with your organization's goals and objectives
- Decarbonization will likely require the use of a combination of levers to achieve a balance across investment and impact
- A decarbonization strategy is dynamic and can evolve over time to meet organizational needs and priorities

Module 3 Next Steps – DUE FRIDAY OCT 23rd

- ✓ Module 3 HW: Decarbonization Modeling Tool: M3.4 – M3.8
- ✓ Sign up for a 1-on-1 Strategy Review Session

Your HW 3 must be submitted to Trio 48 hours before your 1:1 or it will be rescheduled

Email a copy of completed homework to **hondagreenexcellence@trioadvisory.com** to receive credit towards certificate



Thank you.



Aaron Leow
Sr. Manager, Energy & Sustainability Strategy
Cincinnati, OH

Emily Hishmeh
Consultant, Energy & Sustainability Strategy
Boston, MA

trioadvisory.com

Appendix

© Copyright 2024 Trio

Scope 1: Emissions Reductions Strategies

© Copyright 2026 Trio

Scope 1 decarbonization strategies

Scope 1: *Direct GHG emissions from the combustion of fuels or fugitive releases in stationary and mobile sources owned or controlled by the organization.*



Reduce Consumption

Decrease fuel use in current operations by:

- Increasing operational and equipment efficiency
- Reducing equipment load

Examples:

- Install hot water heaters
- Install new windows to decrease air infiltration



Electrification

Replace fuel consuming process and heating equipment with electric alternatives

Pair these actions with renewable energy procurement to eliminate GHG emissions

Examples:

- Install HVAC heat pumps
- Switch to electric boilers



Fuel Switching

Utilize alternative, lower life-cycle emitting fuels by:

- Using 1:1 fuel alternatives
- Installing alternative fuel using equipment

Examples:

- Use renewable diesel in place of traditional diesel
- Install a biomass steam boiler

© Copyright 2026 Trio

Scope 1 lever considerations

	Reduce Consumption	Electrification	Fuel Switching
Who is this for?	Anyone	Building and fleet owners	Building and fleet owners
Typical Cost Structure	Upfront investment	Upfront investment	Operational expense
Upfront Cost	$$	$$$	$
Typical role in mitigation strategy	• Strategic starting point • Often saves money operationally	• Pair with renewable procurement • Integrate into long-term equipment planning	• Leverage "biogenic carbon" accounting rules

© Copyright 2026 Trio

Reduce consumption of fuels

The use of less fuel to perform the same task or produce the same level of output

Key Levers

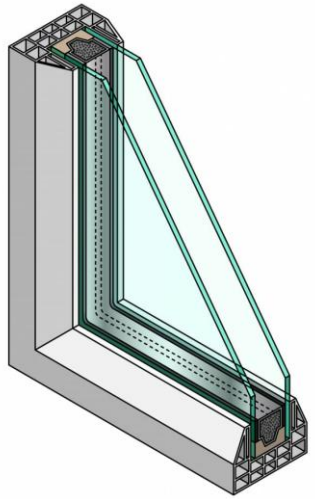
- Process changes
- Building design and renovation
- Equipment efficiencies
- Occupant behavior

Key Considerations

- Perform energy audits to identify the best opportunities
- Research low energy alternatives to energy intensive processes
- Integrate efficiency requirements into new build and renovation standards



No Idle Policy



New windows for decreased air infiltration

Sources: No Idle Photo from VectorStock, Double Pane Windows photo from Modernize

© Copyright 2026 Trio

Electrification

The replacement of equipment that consumes fossil fuels with equipment that uses electricity

Key Levers

- Heat pumps for HVAC and low temperature processes
- Electric resistance heat for high temperature processes
- Electric forklifts
- Electric vehicle fleet

Key Considerations

- Assess potential cost savings, leveraging the efficiency gains of electric equipment
- Plan ahead, assess equipment conditions and use a phase-out approach
- Start with pilot sites



Electric boilers and heating systems



Electric vehicle charging

Do you lease your office space? Talk to your landlord about installing a heat pump!

Sources: Electric Boiler photo from Cleaver-Brooks, Electric Vehicle charger photo from Zerova

© Copyright 2026 Trio

Fuel switching

The transition from burning fossil fuels to burning lower emissions fuels

Key Levers

- 1:1 replacement – using an alternative fuel with the same equipment or process
- Changing equipment or processes for alternative fuel utilization

Key Considerations

- Understand current fuel consumption and fuel types used
- Assess where direct swaps are viable
- Look into equipment and process change feasibility
- Start with a pilot project



Renewable diesel



Replace natural gas with hydrogen

Sources: Renewable Diesel photo from Car and Driver, Hydrogen photo from RMI

© Copyright 2026 Trio

Scope 2: Emissions Reductions Strategies

© Copyright 2026 Trio

Scope 2 decarbonization strategies

Scope 2: *Indirect GHG emissions from the generation of purchased electricity that is consumed in sources owned or controlled by the organization.*



Reduce Consumption

Decrease electricity in current operations by:

- Increasing operational and equipment efficiency
- Reducing equipment load

Examples:

- Install efficient LED lighting
- Install new windows to decrease air infiltration



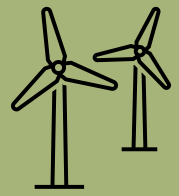
Procure Renewables

Purchase renewable energy through:

- Utility companies
- Contracts with renewable developers
- Energy Attribute Certificates (EACs)

Examples:

- Utility green tariffs
- Power Purchase Agreements



Produce Renewables

Install renewable energy producing equipment to be used by your company

Examples:

- Install onsite solar
- Cogeneration plants

© Copyright 2026 Trio

Renewable electricity considerations

	Utility Programs	Energy Attribute Certificates (EACs/ RECs)	Offsite Renewables (VPPA or PPA)	Onsite solar
Who is this typically for?	Electricity users whose utility offers these programs	Anyone	Very large electricity users	Building owners with adequate space
Complexity	Low	Low	High	Medium
Cost	$ - $$$	$	$$$	$ - $$$
Typical role in mitigation strategy	• Dependent on availability from utility companies	• Often seen as “bridge strategy” used for near-term targets	• Often used to reduce most Scope 2 emissions for large users	• Physical and visual demonstration of commitment • Often reduces energy bills

© Copyright 2026 Trio

Reduce consumption of purchased electricity

The use of less electricity to perform the same task or produce the same level of output

Key Levers

- Process changes
- Building design and renovation
- Equipment efficiencies
- Occupant behavior

Key Considerations

- Perform energy audits to identify the best opportunities
- Research low emissions alternatives to electricity intensive processes
- Integrate efficiency requirements into new build and renovation standards, and lease contracts



LED lighting



Energy conservation policy

Sources: LED lighting photo from elumigen, signage photo from Home Depot

© Copyright 2026 Trio

Procure renewable electricity

The purchase of renewable electricity from your utility or from a renewable energy project

Key Levers

- Utility green pricing and green tariff programs
- Energy Attribute Certificates (EACs) / Renewable Energy Certificates (RECs)
- Power Purchase Agreements (PPAs)
- Utility advocacy

Key Considerations

- Determine if you have retail choice and/or if your utility has green electricity programs
- Explore purchasing renewable energy directly from a developer or through a retail electricity supplier
- Buy EACs or RECs from the open market



Do you lease your office space? Consider purchasing unbundled RECs to cover your annual electricity consumption

© Copyright 2026 Trio
Sources: Trio

Produce renewable electricity

Producing renewable electricity at your facility

Key Levers

- Onsite solar
- Onsite wind
- Cogeneration (with low carbon fuels)

Key Considerations

- Evaluate your sites' potentials for onsite generation
- Determine your financing preference (capital investment vs. Power Purchase Agreements (PPAs)
- Cogeneration must be paired with low carbon fuels to fully decarbonize emissions



© Copyright 2026 Trio
Sources: Trio

Emissions Reduction Profile by Facility Type

© Copyright 2026 Trio

Facility type opportunities: Office and commercial

Offices, Headquarters, Retail, Warehouse

Key opportunities center on replacing natural gas heating with high-efficiency electric systems while reducing electricity demand through building efficiency and renewable energy procurement.

	Most Common Emission Sources	Most Common Opportunities
Scope 1	• **Natural gas** for space heating most common and dominant source • Emergency generators • Refrigerant leaks • Hot water systems	• **Electrification:** • heat pumps and electric boilers • Low-GWP refrigerants & leak repairs

Scope 2	• **Purchased electricity** for
	  • building lighting
	  • office equipment and plug loads
	  • HVAC equipment
	  • refrigerant systems
		• **Energy Efficiency:**
		  • Lighting and building efficiency upgrades, HVAC optimization
		• **Renewable Energy:**
		  • Pursuing onsite options or procurement of renewables

© Copyright 2026 Trio

Facility type opportunities: Energy-intensive operations

Manufacturing, Manufacturing and Warehouse, Laboratory, Data Center

Key opportunities center on reducing energy-intensive production and cooling loads through efficiency improvements, equipment optimization, electrification where feasible, and renewable electricity procurement.

	Most Common Emission Sources	Most Common Opportunities
Scope 1	• **Natural gas** for process heating, boilers, ovens, furnaces, & steam generation • Backup diesel generators • Process emissions (where applicable) • Refrigerant leaks	• **Electrification** of process heat where technically feasible • **Fuel-Switching** to lower-carbon fuels • Low-GWP refrigerants & leak repairs

Scope 2	• **Purchased electricity for**
	  • production equipment, machinery, IT loads, & cooling systems
	  • laboratory & clean-room operations
	• Material handling and warehouse equipment
		• **Energy efficiency**
		  • Process optimization, cooling efficiency
		• **Renewable energy**
		  • Onsite generation or renewable electricity procurement

© Copyright 2026 Trio

Facility type opportunities: Mobile and temporary operations

Fleet, Construction Site

Key opportunities center on reducing fuel consumption through fleet optimization, equipment electrification where feasible, and transitioning to lower-carbon fuels.

	Most Common Emission Sources	Most Common Opportunities
Scope 1	• **Diesel and gasoline** consumed by vehicles and mobile equipment • Construction equipment • Temporary generators and site heating equipment	• **Fleet and equipment efficiency** • route optimization, idle reduction, utilization improvements • **Electrification of vehicles** • Lower-carbon fuels where electrification is not currently feasible
Scope 2	• **EV charging and electrified equipment charging** • Temporary site electricity consumption • Maintenance depots and support facilities	• **Renewable electricity procurement** • Site energy management and temporary power optimization

© Copyright 2026 Trio