

Decarbonization Strategy & Action Accelerator Program

Module 2: Understanding Your GHG Emissions



Introductions



Trio Team



Aaron Leow

Senior Manager, Sustainability
& Clean Energy



Chelsey Fogarty

Manager,
Sustainability & Clean Energy



Emily Hishmeh

Consultant,
Sustainability & Clean Energy

Honda Team



Alyssa Barbuto

Environmental Sustainability Project Leader



Antitrust Statement

Trio is hosting the Accelerator program for the purpose of providing automotive 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

Housekeeping Items



By participating in this program, your organization commits to making a good-faith effort to attend sessions, complete program requirements, and advance the development of a decarbonization strategy

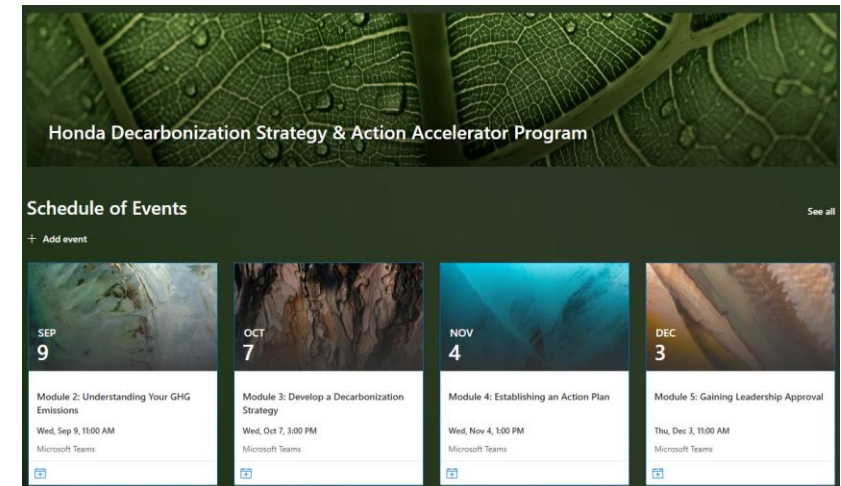
If you have not already, please submit the following items to the program inbox to receive credit towards certification:

- ✓ Confirmation you watched the Module 1 Recording (If you did not attend)
- ✓ Copy of the completed HW 1: Securing Internal Buy-In
- ✓ Confirmation that you have completed HW 2: Data Collection Exercise

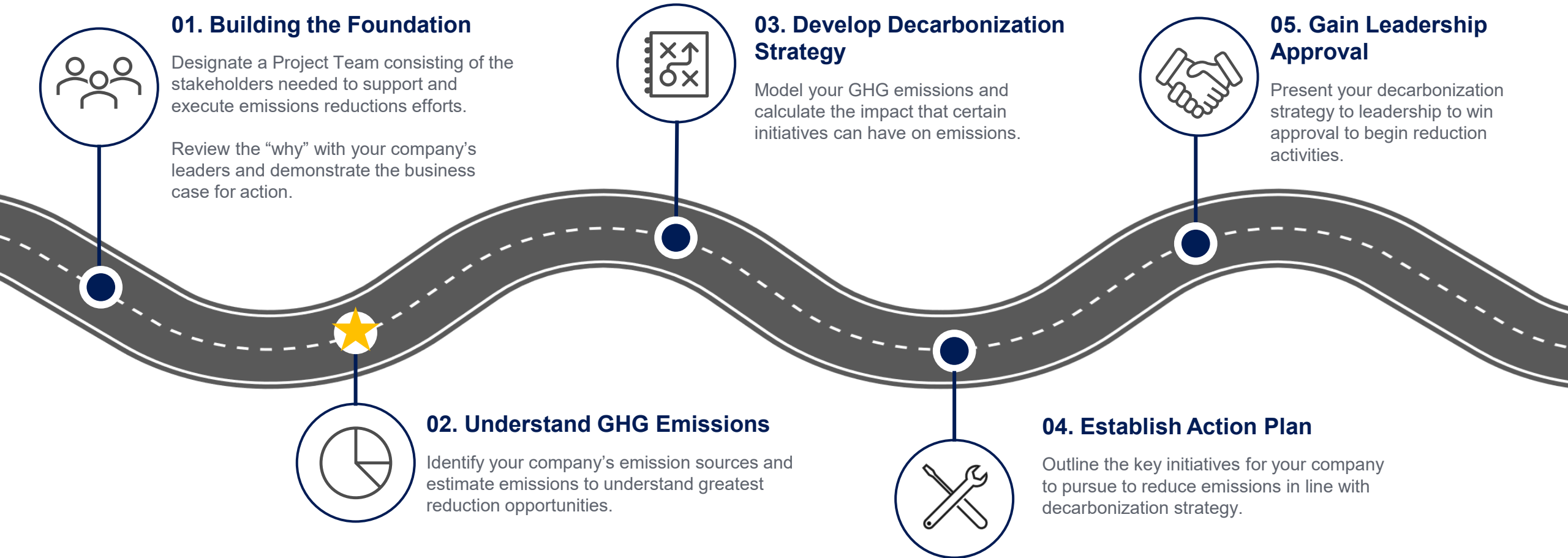
All participants should have access to the Program Webpage at this time.

If you have not received an access to the webpage or would like to invite other participants from your organization, please contact the program inbox.

Program Inbox: hondagreenexcellence@trioadvisory.com



Decarbonization action roadmap



Today's objectives & agenda

1

Fundamentals

Review core greenhouse gas (GHG) accounting principles and the significance of measuring emissions

2

Insights

Discuss GHG inventory calculation methodology and opportunities to continuously improve emissions accuracy

3

Implementation

Introduce the Decarbonization Strategy Modeling Tool and walkthrough leveraging tool for GHG emissions measurement as part of strategy development





Fundamentals

GHG Accounting Review

Greenhouse gas (GHG) inventory review



A GHG inventory is the **total greenhouse gas emissions generated by an organization's actions in a given year** expressed in carbon dioxide equivalent (CO₂e).

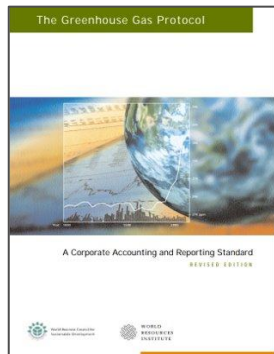


Emissions calculations are **completed annually** allowing for organizations to track and report on progress over time



GREENHOUSE
GAS PROTOCOL

GHG Inventories are governed by the **Greenhouse Gas Protocol** a globally recognized standard for accounting and reporting GHG emissions that focuses on company-level emissions



An organization's GHG emissions and emission sources



Scope 1: Direct Emissions

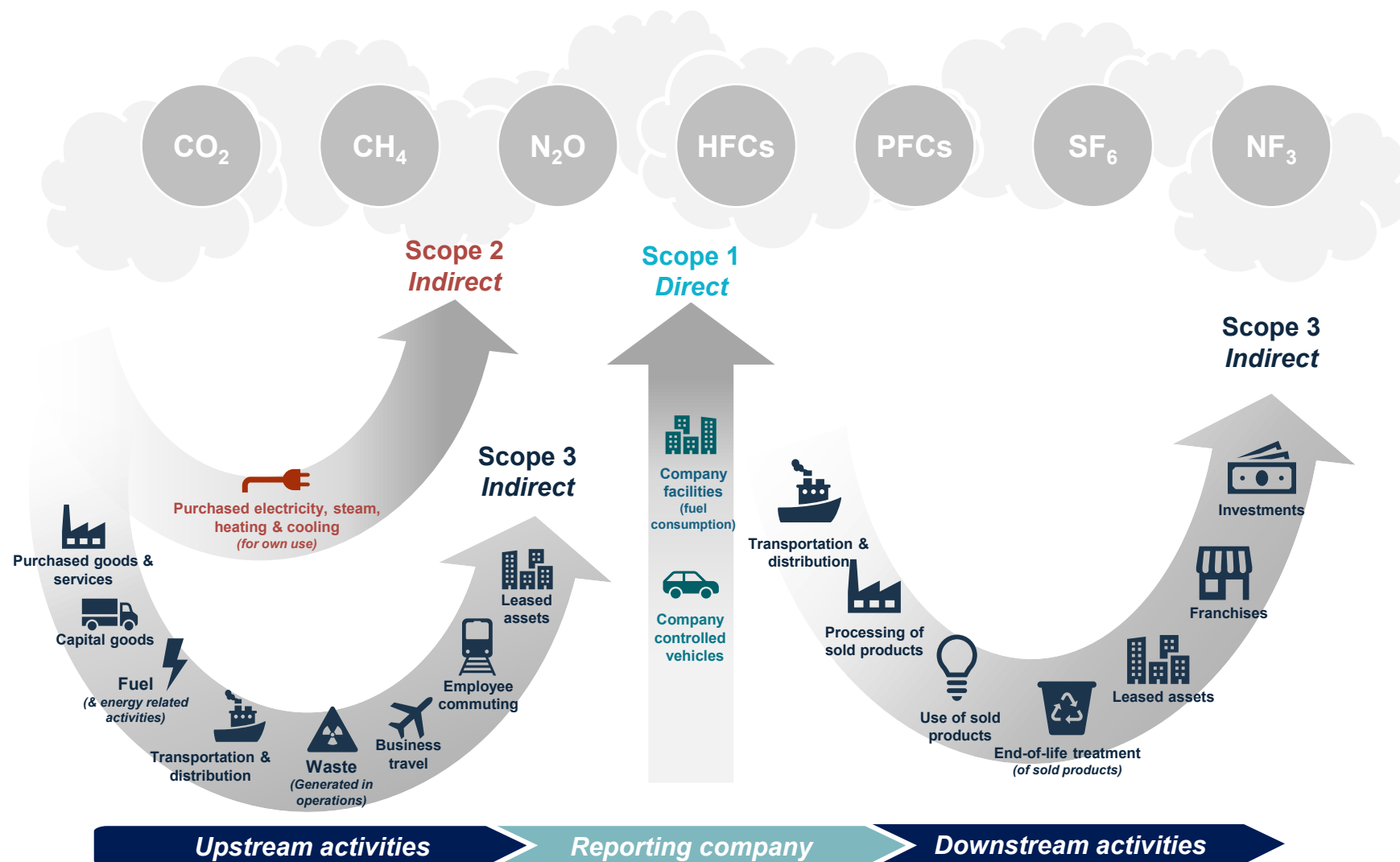
Direct GHG emissions from the combustion of fuels or fugitive releases in stationary and mobile sources owned or controlled by the organization.

Scope 2: Indirect Emissions

Indirect GHG emissions from the generation of purchased energy that is consumed in sources owned or controlled by the organization.

Scope 3: Supply Chain Emissions

Indirect GHG emissions from all other sources not owned or controlled by the organization but that are a consequence of its upstream and downstream activities.



Significance of measuring GHG emissions



A GHG inventory provides the foundation for transforming emissions data into actionable insights, enabling organizations to identify reduction opportunities and develop a data-driven decarbonization strategy.

GHG inventories enable organizations to:



Identify major emissions sources

Emissions hotspots indicate greatest impact areas, improving efficiency and potentially lowering costs.



Track emissions over time

Measure progress and evaluate the effectiveness of reduction efforts.



Report on progress

Demonstrate transparency and accountability to stakeholders and prepare for evolving disclosure requirements.



Develop data-driven decarbonization strategy

Leverage insights to prioritize initiatives that deliver the greatest impact.



Insights

Preparation for measuring emissions in the Decarbonization Modeling Tool

Accelerator Program: Strategy development tools and process



Focus for Module 2

1

- **Operational Data Input**
 - Input facility information and activity data in **Decarbonization Strategy Modeling Tool** to measure Scope 1 and 2 emissions

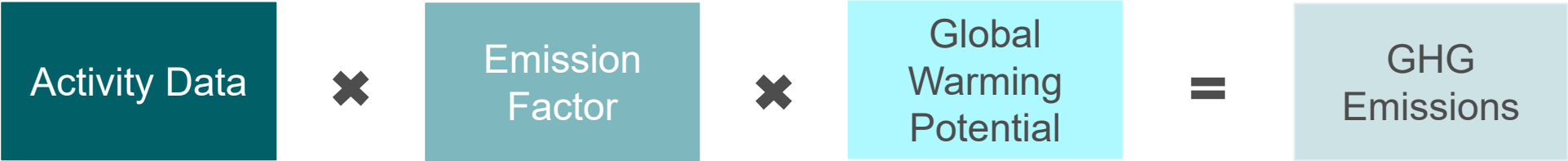
2

- **Scope 1 & 2 Strategy Development**
 - Estimate emissions growth and develop strategy to abate emissions

3

- **Project list development**
 - Define list of near-term projects which support the achievement of decarbonization strategy

General equation used for calculating emissions in the model



Description	Usage of an emitting source (e.g. gallons of gasoline)	Amount of GHG (CO ₂ , CH ₄ , N ₂ O, etc.) emitted per unit of activity data	Relative warming impact of that GHG compared to CO ₂	CO ₂ e emissions of one GHG from use of that emitting source
Where to get information	Collected by your company	Published dataset	Published dataset	Calculated by the Decarbonization Modeling Tool

*Calculations repeat and sum for all GHGs for that emission source.
Calculations repeat for all emission sources in the company for the given timeframe.*

Example calculation

*MT CO₂e = Metric tons of CO₂-equivalent.
This is a standard GHG emissions unit of measure



This is an example of how the Modeling Tool will calculate emissions for natural gas consumption for Organization X. We will assume 100,000 therms of natural gas consumption at Site A.

Note: this sample calculation is for illustrative purposes only

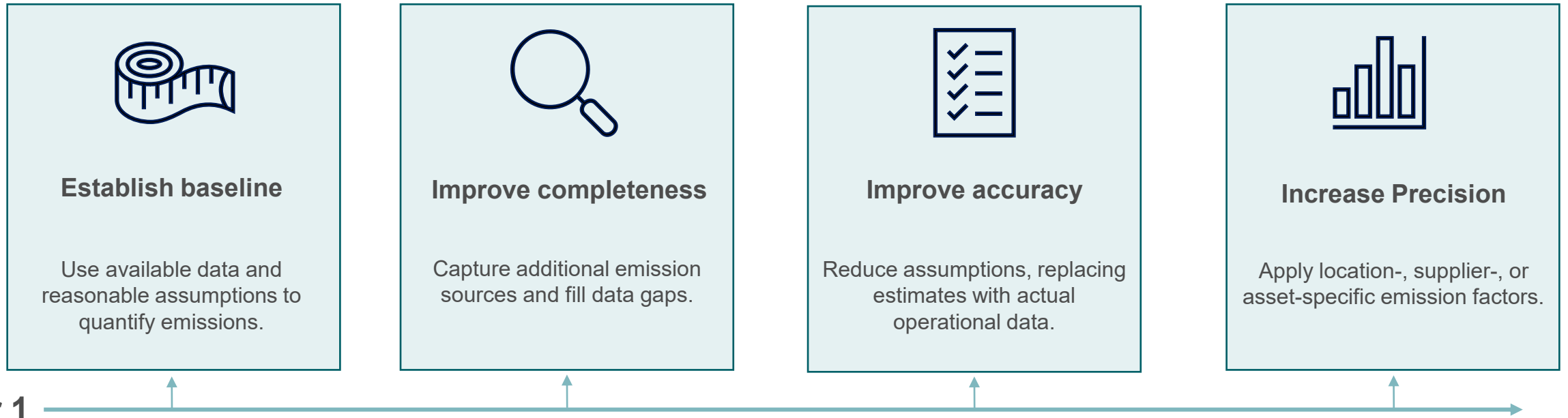
Natural Gas Consumption	Greenhouse Gas	Emission Factor	Emissions	Global Warming Potential	Emissions
therms		MT of GHG / therm	MT of GHG	#	MT CO ₂ e*
100,000	CO ₂	0.0053	530	1	530
100,000	CH ₄	0.000001	0.1	28	0.01
100,000	N ₂ O	0.0000001	0.01	265	0.001
100,000	CO ₂ e	0.0053011	-	1	531.011

In this example, Organization X's GHG emissions from their natural gas consumption at Site A is **531.10 MT CO₂e**

Improving GHG emissions measurement over time



With each calculation cycle, organizations can increase inventory accuracy, completeness, and confidence by strengthening data collection, methodologies, and emissions calculations.



Enhance Governance: Continuously strengthen measurement controls including data governance, quality assurance, and documentation

Activity data: Scope 1 emission sources



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

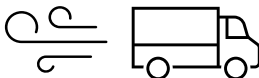
Source	Examples	Typical activity data
Stationary combustion Burning of fuel to generate electricity, steam, heat, or power in stationary equipment.	Natural gas boilers	MMBtu, therms of natural gas
	Diesel generators	Volume of diesel
Mobile combustion Combustion of fuels in transport vehicles	Fleet vehicles	Volume of fuel or distance driven
	Forklifts	Volume or mass of fuel
Process emissions Emissions from physical or chemical processes	CO ₂ from chemical reduction in blast furnaces	Mass of material consumed and/or output produced
Fugitive emissions Intentional and unintentional releases* *equipment leaks from joints, seals, packing, gaskets, as well as fugitive emissions from coal piles, wastewater treatment, pits, cooling towers, gas processing facilities, etc.	Fire extinguisher leakage or deployment	Volume or mass released, or purchases as proxy estimate
	HVAC refrigerant leakage	Charge size and leak rate %, or recharge mass
	Air conditioning recharge leakage	Charge size and leak rate %, or recharge mass



Activity data: Mobile emission sources



Mobile sources are vehicles and equipment that combust fuel while moving or being transported. These emissions are typically direct (Scope 1) emissions from fuel owned, leased, or controlled by the organization.

If it has wheels, its mobile equipment! 

- **Prioritize fuel-based calculations** for the most accurate mobile emissions estimates
- **Track emissions in region where fleet activity occurs** to identify operational hotspots
- **Focus on owned and controlled mobile assets**, including fleet vehicles, trucks, and equipment
- **Leverage existing operational systems for data**, such as fuel cards, receipts, and fleet management platforms.

Common Examples

- | | |
|------------------------------------|--|
| • Passenger vehicles | • Construction equipment (excavators, loaders, bulldozers) |
| • Light- and heavy-duty trucks | • Marine vessels and boats |
| • Buses and shuttles | • Rail equipment and locomotives |
| • Forklifts & industrial equipment | |

Data Sources

- | | |
|---|--|
| • Fuel purchase records <ul style="list-style-type: none">• fuel cards, fuel receipts | • Maintenance and asset management databases |
| • Fleet management systems | • Mileage logs and driver reports |
| • Fuel supplier invoice | |

Data Owners

- | | |
|------------------------------|-----------------------------------|
| • Fleet Management | • Field Services / Operations |
| • Transportation & Logistics | • Finance (fuel expense tracking) |
| • Facilities Operations | • Sustainability / ESG Teams |

Identifying Scope 2 emission sources



Indirect GHG emissions from the generation of purchased energy that is consumed in sources owned or controlled by the organization.

Source	Examples	Typical activity data
Purchased electricity Electricity that is purchased or otherwise brought into the organizational boundary of the company.	Grid electricity	MWh purchased, location
	Renewable electricity	MWh purchased, resource type
Purchased heat or steam Heat or steam (in the form of hot water) delivered to an organization's facilities through localized grid called a district energy system or through a direction connection line	Steam	MMBtu purchased, energy source
Purchased cooling/chilled water Cooling (in the form of chilled water) can be delivered to an organization's facilities through a localized grid called a district energy system or through a direct line connection.	Chilled water	



Definitions Source: [GHG Protocol](#), pg 41



Implementation

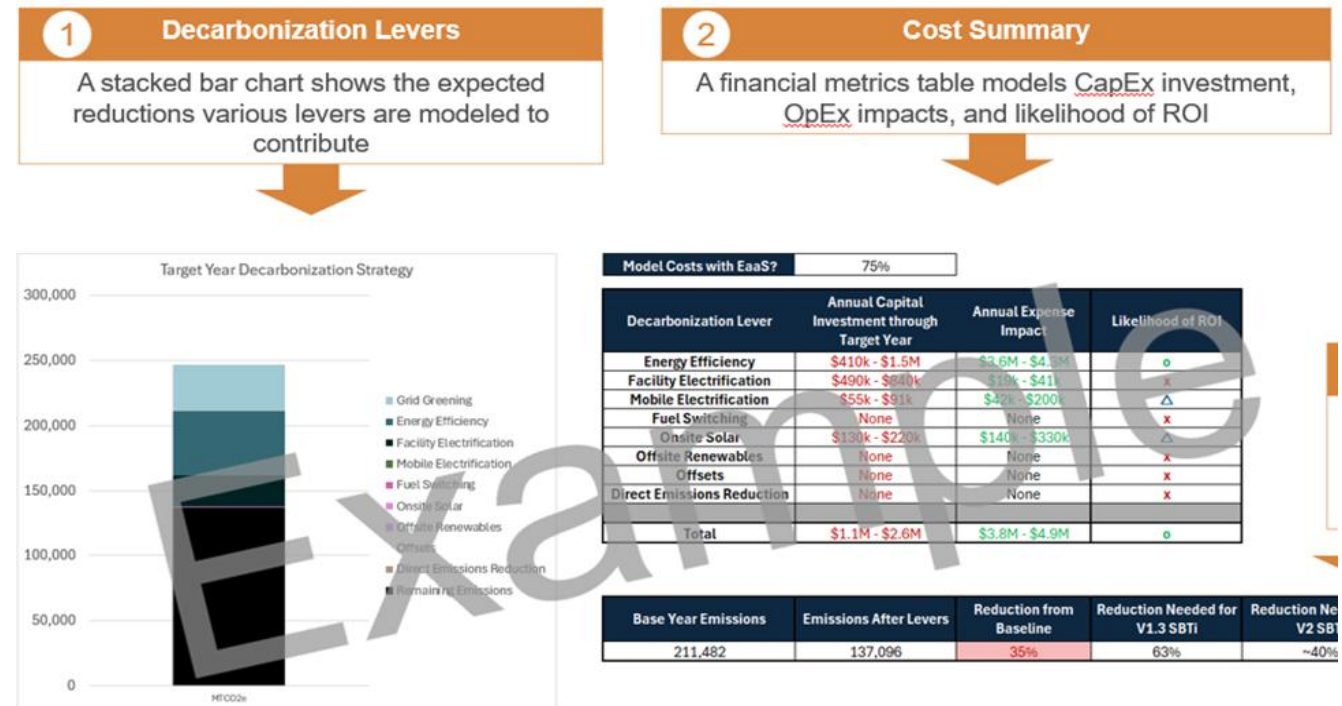
Decarbonization Modeling Tool Walkthrough

Emissions impact in Decarbonization Strategy Modeling Tool



The **Decarbonization Strategy Modeling Tool** helps organization's design and evaluate the impacts of a tailored decarbonization strategy. This tool will be used for multiple modules, and enables users to:

- Understand your current emissions footprint and visualize its evolution over different target horizons
- Develop a tailored decarbonization strategy
- Understand cost implications of strategy, including high-level capital investment, operational expenses, and return on investment





Looking Ahead

Key Takeaways & Next Steps

Key Takeaways

- Understanding your GHG footprint is a critical first step to developing an emissions reduction strategy.
- It is normal for organizations to improve the precision and accuracy of their emissions measurements year over year, reflecting process improvements.
- The Decarbonization Strategy Modeling Tool is a key program resource for participants to understand their emissions profile and develop a tailored decarbonization strategy.

Module 2 Next Steps – DUE FRIDAY OCT 2ND

- ✓ Complete Module 1 Homework Assignments if not yet submitted
- ✓ Decarbonization Modeling Tool: M2.0 - M2.3

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



Thank you.



Aaron Leow

Senior Manager, Energy & Sustainability Strategy
Cincinnati, OH

Chelsey Fogarty

Manager, Energy & Sustainability Strategy
Boston, MA

Emily Hishmeh

Consultant, Energy & Sustainability
Boston, MA