A GUIDE TO REPORTING CHG EMISSIONS & SUSTAINABILITY GOALS

Presented by: Christi Wilson & Steven Flagg

SPEE – Dallas Chapter

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Christi Wilson and Steven Flagg

Abstract:

The growing shift toward "decarbonization" and "net-zero carbon commitments" has investors pressuring energy-intensive industries to develop a climate strategy as part of environmental, social, and governance (ESG) disclosure practices. The new Administration has re-committed the U.S. to the Paris Climate Agreement, and 24 states along with the District of Columbia have established economy-wide GHG emission reduction targets. For oil and gas exploration or production companies, the social and governmental pressures to reduce GHG emissions are driving fundamental changes in project evaluation, financial commitments, and reserves estimation. Financial benefits or emission offsets have energized some operators to explore old and new tertiary recovery opportunities.

In this session we will discuss these key drivers and other pressures influencing companies to develop GHG footprints and metrics, increase transparency in reporting and disclosure practices, and publicly commit to net zero emissions aspirations. The presentation will provide a practical roadmap for quantifying Scope 1, 2, and 3 GHG emissions, benchmarking emissions against peers, and establishing GHG reduction targets.

A GUIDE TO REPORTING CHG EMISSIONS & SUSTAINABILITY GOALS

Christi Wilson and Steven Flagg

Bios:

Christi Wilson is a Principal Consultant affiliated with Trinity's Pittsburgh, PA office. A twenty-five year veteran in the environmental field, she has in-depth experience with federal and state air quality permitting and compliance for a variety of energy intensive industry sectors. She has extensive experience with criteria and HAP/toxic air pollutant and greenhouse gas (GHG) emissions quantification and inventory development and reporting under state and federal compulsory programs, as well as corporate sustainability and voluntary reduction programs.

In her current role, Ms. Wilson serves as a national subject-matter expert for Trinity's Oil & Gas business line and as a climate change specialist assisting clients with development of carbon footprints, GHG reduction targets, and sustainability strategies. She has served as the lead instructor for several of Trinity's national training courses and numerous custom courses, webinars and seminars on a variety of industry topics. She has presented related training topics to a variety of audiences as part of industry trade group conferences, courses for regulatory agency personnel, and for numerous public meetings and hearings on industrial development projects.

Ms. Wilson earned her Bachelor of Science degree in Earth, Atmospheric, and Planetary Sciences from M.I.T. in Cambridge, Massachusetts.

Steven M. Flagg is a senior analyst in the Reservoir Studies Division at DeGolyer and MacNaughton Corp. (D&M). Since joining D&M in 2011, Mr. Flagg has extensive experience in the evaluation of resources in various geographic regions throughout the world. He has diverse knowledge of onshore and offshore oil and gas facilities design, evaluation, cost management, and scheduling, and he has carried out extensive research into the potential commercialization of floating liquid natural gas (FLNG) in southeast Asia and western Africa.

Some of his most recent projects involved leveraging his chemistry background to assist clients in Australia, Europe, and North America in creating internal greenhouse gas reporting guidelines and requirements in accordance with applicable regulatory environments and in estimating direct and indirect emissions based on the United Nations Intergovernmental Panel on Climate Change (IPCC) or ISO 14064 standards. Flagg has expertise with enhanced oil recovery operations or permanent storage of CO2 to assist clients within the United States for further evaluation of brownfield options, including maximizing 45Q tax credits.

Prior to joining D&M, he served as a cavalry officer in the United States Army with the 1st Cavalry Division. Flagg graduated with honors from Syracuse University in 2007 with a Bachelor of Science degree in inorganic chemistry. He was named a Vice President at D&M in 2019.

A Guide to Reporting GHG Emissions & Sustainability Goals

Dallas SPEE Chapter Meeting - May 13, 2021

Christi M. Wilson – Principal Consultant

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Topic Overview

- **Current Drivers**
- **GHG Emissions Inventories for Sustainability Reporting**
  - Carbon Footprint Nuts & Bolts
  - Scope 1, 2 & 3 Emissions Quantification
  - Benchmarking Pitfalls
- **Sustainability Goals: GHG Reduction Target Setting**
  - Science-Based/Net-Zero Targets
  - Carbon Pricing Considerations

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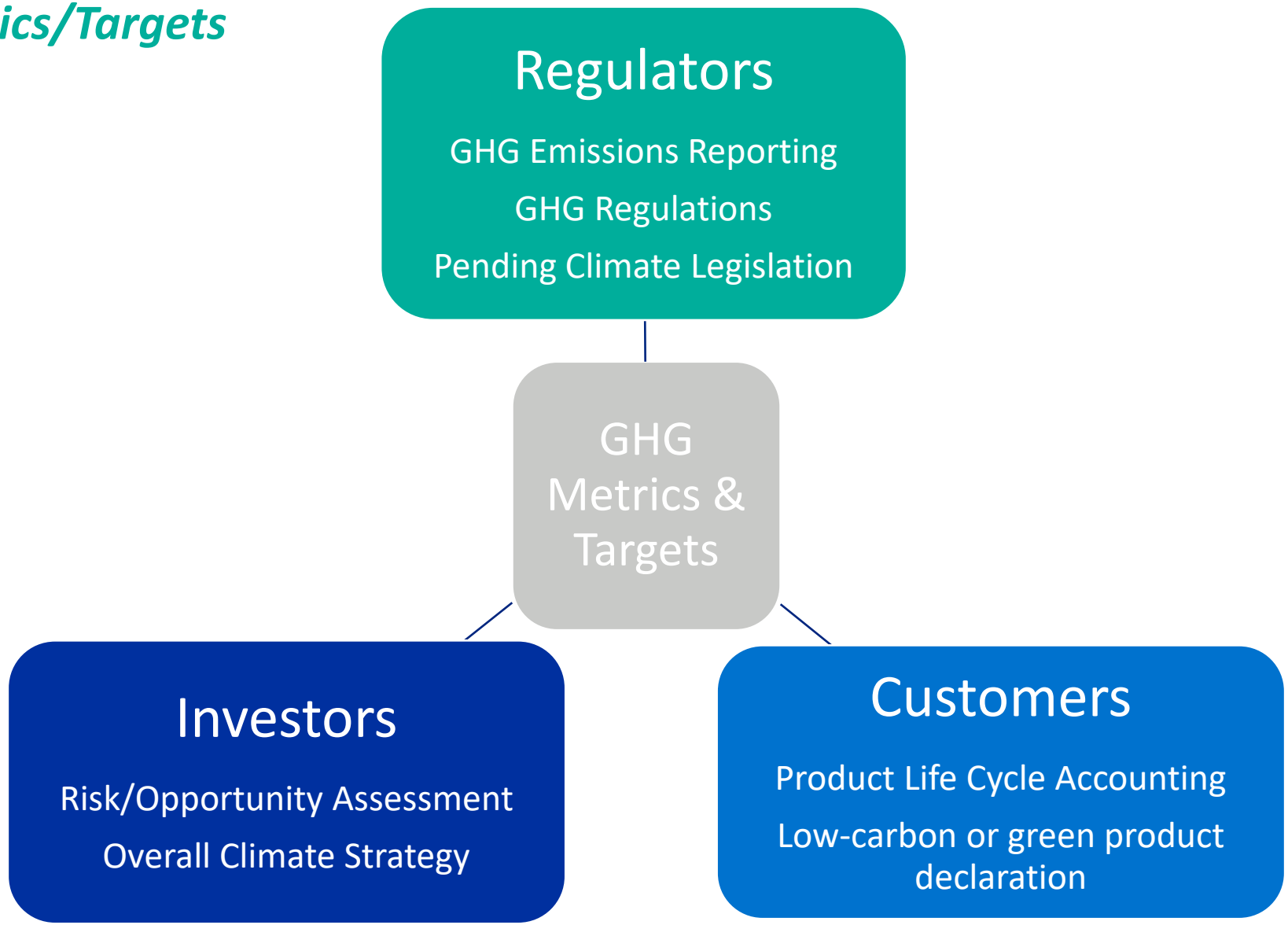
Drivers for GHG Emissions/Sustainability Reporting

Metrics/Targets



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TCFD Recommendations

- Disclose organization's **governance** around climate-related risks and opportunities
- Disclose actual/potential impacts of climate-related risks and opportunities on organization's businesses and resilience of organization's **strategy** considering different scenarios (including 2°C or lower scenario)
- Describe how organization identifies and manages climate-related **risks**
- Disclose **metrics and targets** used to assess and manage climate-related risks and opportunities, where such information is material
  - Disclose S1, S2, and if appropriate, S3 GHG emissions.

What Biden's Sustainability Agenda Means for Business - HBR

- Biden EO sets goal of carbon-free power sector by 2035 and net-zero economy by 2050
- Climate regulation on the way (CLEAN Future Bill proposed 3/2/31)
- Investors will increasingly favor businesses taking climate action – delayed action considered a business risk
- Mandatory corporate disclosure on climate risk/GHG emissions
- Carbon pricing is in the pipeline
  - NAS proposes economy-wide carbon price starting at $\$40/tCO_2$ and rising by 5% annually
- Clean energy economy investments to increase
- Corporate climate advocacy will drive smooth transition to net-zero

Sources:

https://hbr.org/2021/03/what-bidens-sustainability-agenda-means-for-business

National Academy of Sciences/Engineering/Medicine 2021 Study: Accelerating Decarbonization of US Energy System

https://www.nap.edu/catalog/25932/accelerating-decarbonization-of-the-us-energy-system

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GHG Emissions Inventories for Sustainability Reporting

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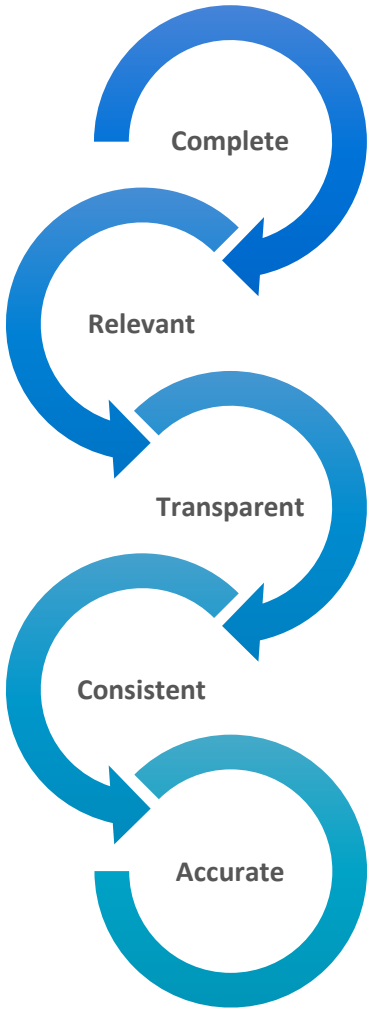
GHG Accounting and Reporting Principles

WRI/WBSCD GHG Protocol Corporate Accounting & Reporting Standard



- **Relevant**
  Contains the data that matters most to your business and stakeholders (internal & external)
- **Complete**
  Footprint includes all emissions that are relevant and material; any exclusions are justifiable and documented
- **Consistent**
  Calculation methods and approaches are the same year-over-year to ensure apples-to-apples comparison; baseline emissions are recalculated as needed
- **Transparent**
  All inputs, assumptions, exclusions, etc. are clearly documented to establish a credible audit trail
- **Accurate**
  Uncertainties in quantification are reduced to the maximum possible extent to serve decision-making needs and objectives

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Current Status of GHG Accounting at Many Facilities

- Regulatory reporting aimed at developing future regulation – cap and trade or carbon tax
- 40 CFR Part 98 : GHG Mandatory Reporting Rule (MRR)
  - MRR Reporting began in 2010/2011
  - Limited scope of emission sources (e.g., 25,000 MT CO_2e threshold for most subparts, all direct sources not covered)
  - Outdated GWP (IPCC, AR4)
  - Outdated emission factors for certain sectors
  - Potentially limited accuracy (e.g., Subpart C options)

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GHG Corporate Footprint Nuts and Bolts

Step 1: Establish Inventory Boundaries

- Organizational Boundaries
  - Equity Share
  - Control (Financial or Operational)
- Operational Boundaries
  - Include Scope 1 and Scope 2
  - Decide whether to include relevant Scope 3 categories

GHG Corporate Footprint Nuts and Bolts

Organizational Boundaries

Consolidation approach	*Description*
Equity share	Under the equity share approach, a company accounts for GHG emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation.
Financial control	Under the financial control approach, a company accounts for 100 percent of the GHG emissions over which it has financial control. It does not account for GHG emissions from operations in which it owns an interest but does not have financial control.
Operational control	Under the operational control approach, a company accounts for 100 percent of the GHG emissions over which it has operational control. It does not account for GHG emissions from operations in which it owns an interest but does not have operational control.

Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

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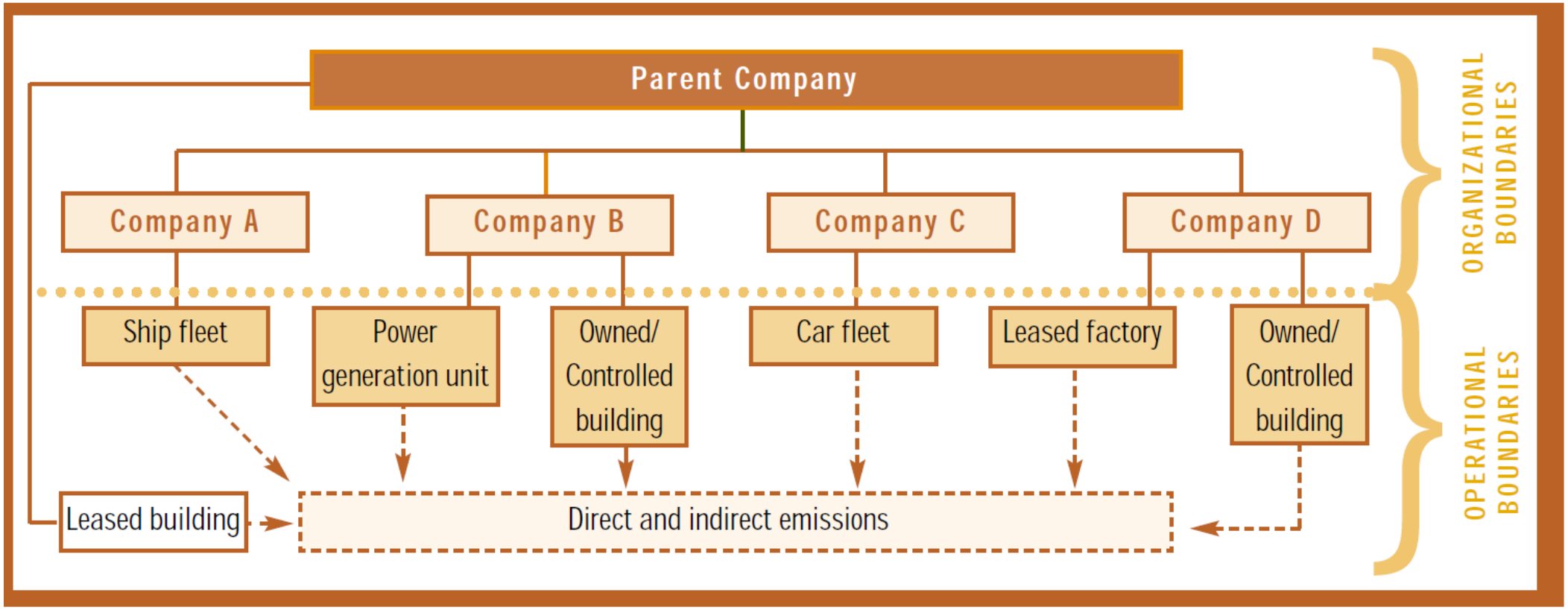
Organizational and Operational Boundaries



Source: *https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf*

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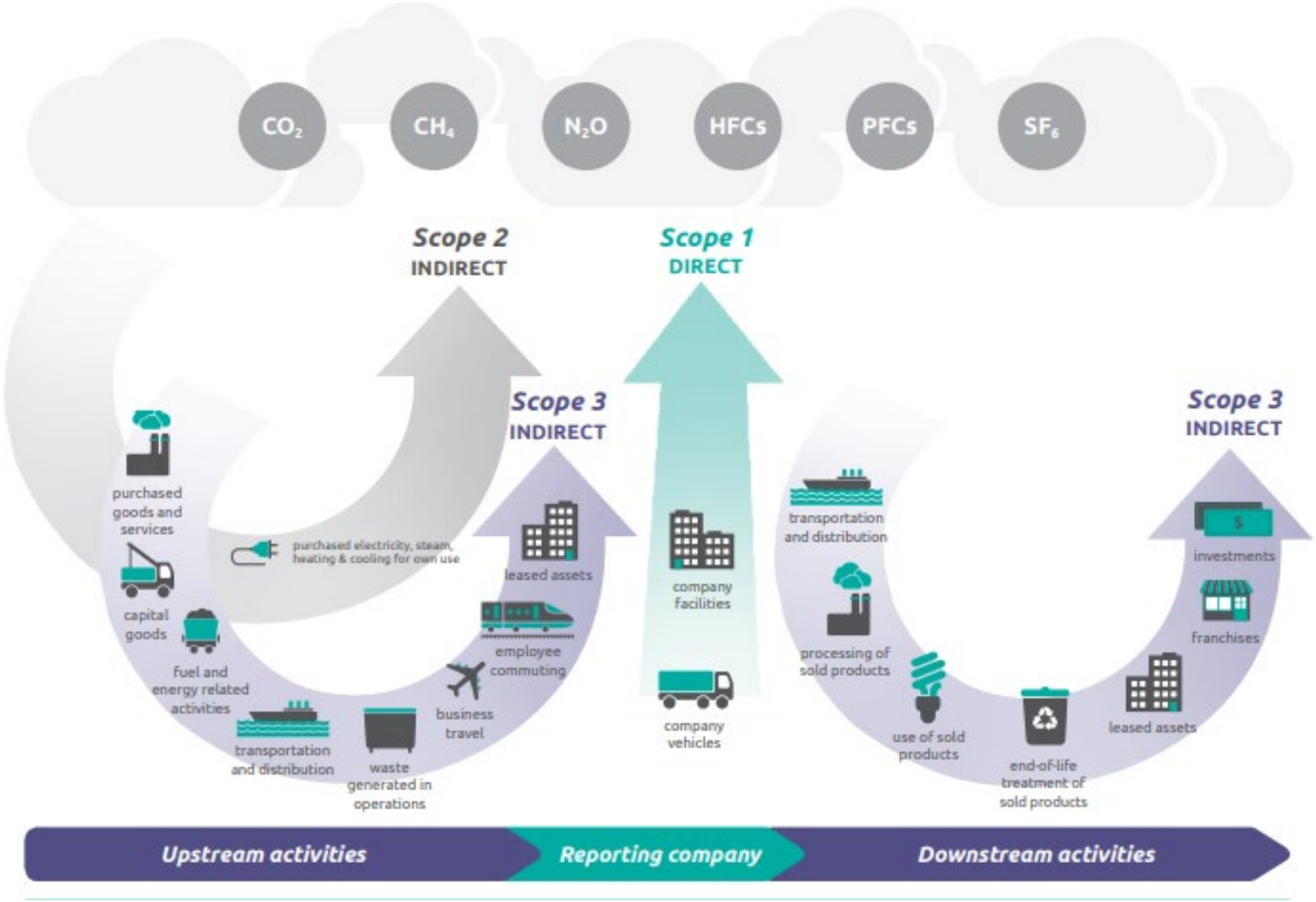
GHG Protocol Scopes & Emissions Across the Value Chain



Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

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Overview of Scopes

Emissions type	Scope	Definition	Examples
Direct emissions	Scope 1	Emissions from operations that are owned or controlled by the reporting company	Emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment
Indirect emissions	Scope 2	Emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company	Use of purchased electricity, steam, heating, or cooling
	Scope 3	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions	Production of purchased products, transportation of purchased products, or use of sold products

Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

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GHG Corporate Footprint Nuts and Bolts

Scope 3 Value Chain Accounting

- Scope 3 Categories
  - Purchased goods and services
  - Capital goods
  - Fuel and energy-related activities
  - Upstream transportation/distribution
  - Waste generated in operations
  - Business travel
  - Employee commuting
  - Upstream leased assets
  - Downstream transportation/distribution
  - Processing of sold products
  - Use of sold products
  - End-of-life treatment of sold products
  - Downstream leased assets
  - Franchises
  - Investments
- Scope 3 Reporting
  - Reported separately from S1/S2, by category
  - Exclude biogenic CO_2 emissions (report separately), GHG trades/allowances
  - Justify excluded categories

Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

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GHG Corporate Footprint Nuts and Bolts

Step 2: Establish a Baseline Year

- Specify reason for choosing particular year
- Develop baseline year emissions recalculation policy
  - Mergers/acquisitions/divestments
  - Change in calculation methodology
  - Improvement in accuracy of emission factors
  - Correction of significant errors
- Recalculate baseline year emissions when significant changes in company structure of inventory methodology occur
  - "significant" not defined by GHG Protocol Standard, but may be by other reporting programs

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GHG Corporate Footprint Nuts and Bolts

Step 3: Identify and Calculate Emissions

- Identify GHG emission sources
- Select calculational approach
  - Cross-sector tools for common sources (stationary combustion, mobile sources, refrigerant use, etc.)
  - Industry sector-specific tools, Part 98 subparts
- Collect activity data (can be challenging)
- Develop calculations
- Roll up to corporate level
- Assess materiality

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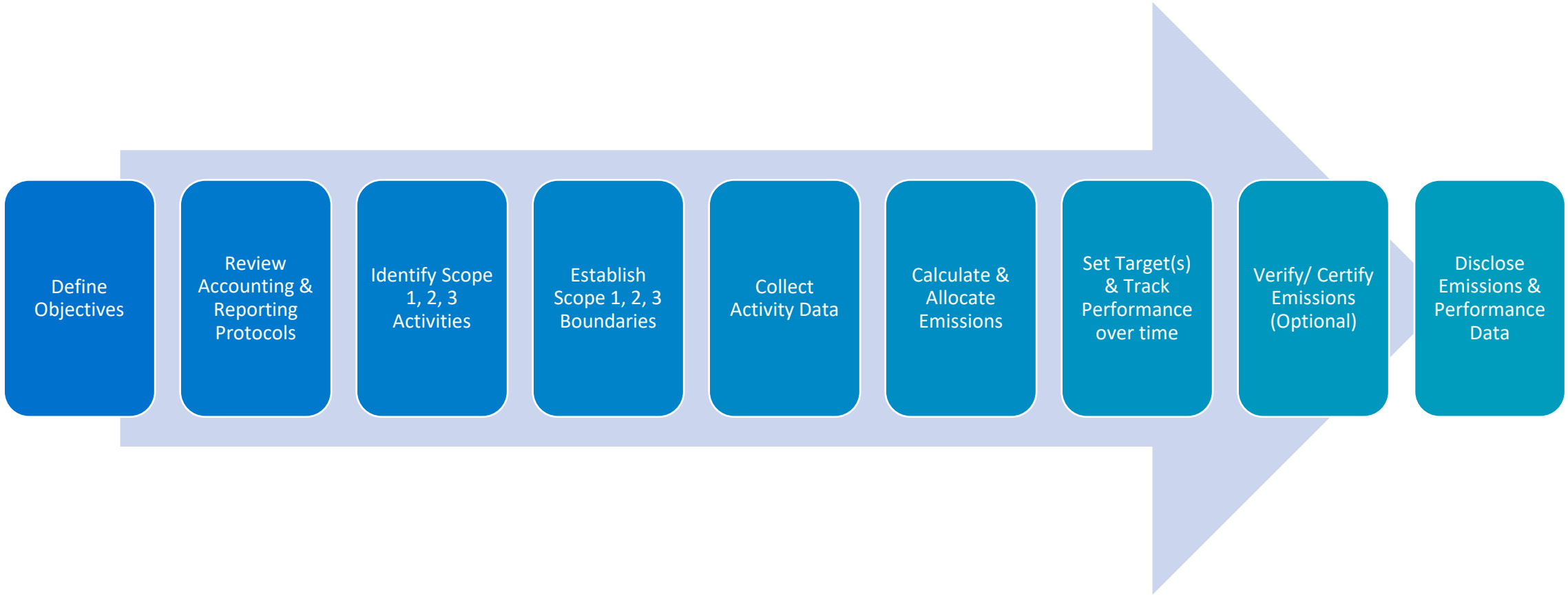
Emissions Accounting & Performance Tracking Steps



Adapted from: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

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Benchmarking Pitfalls

- EPA's FLIGHT data is readily available, but is only a subset of S1 sources and allows reporters to choose from various calculation methods
- Numerous globally-used disclosure programs result in a distinct lack of standardization in reporting (with disparities in emission factors, GWPs, calculation methods, scope boundaries, intensity metrics, etc.)
- Industry-specific initiatives, protocols, and standards contribute to additional variation in disclosures
- Transparency in individual reports/disclosures also fluctuates widely
  - Disparities in baseline years, boundaries, targets

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Sustainability Goals:
GHG Reduction Target Setting

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Why Set GHG Reduction Targets?

- Minimize and manage GHG risks & opportunities
- Achieve cost savings and stimulate innovation
- Prepare for future regulations
- Demonstrate leadership and corporate responsibility
- Participate in voluntary programs

The number of companies making climate-neutral or net zero pledges has doubled during the COVID-19 pandemic

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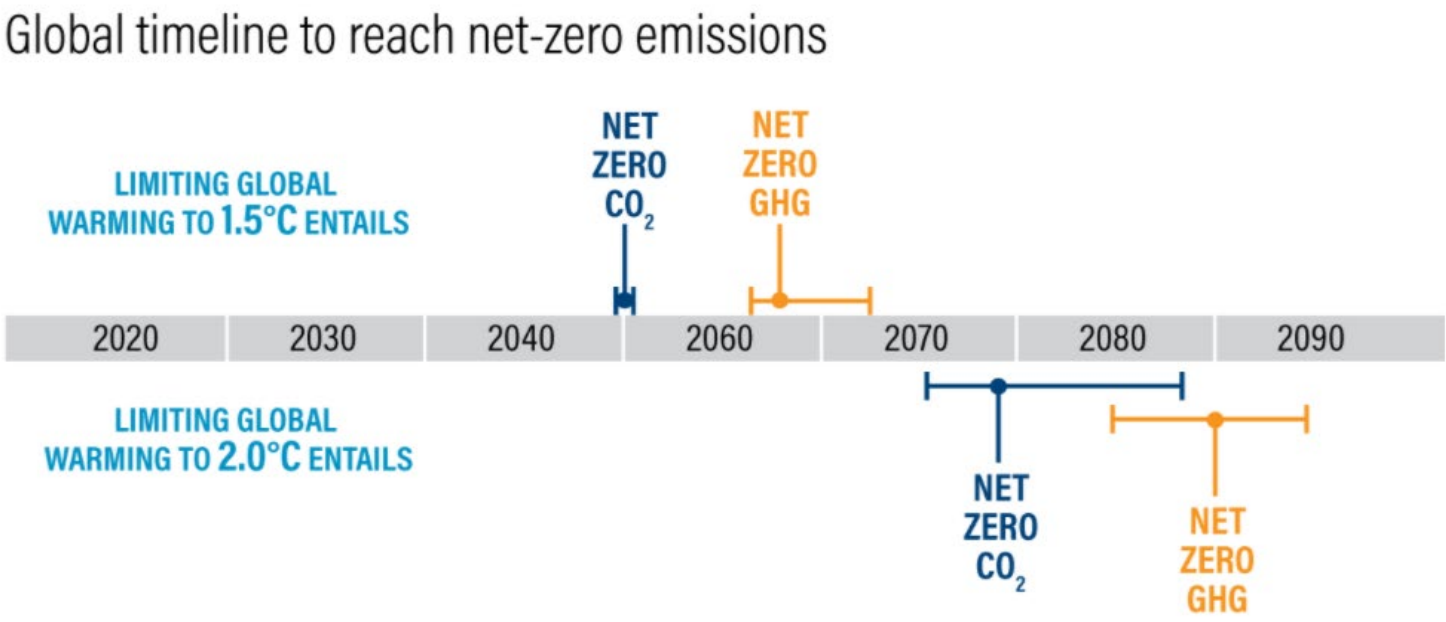
Global GHG Reduction Targets

- Paris Agreement temperature goal: limit warming to below 2°C, ideally below 1.5 °C
- Timeline to achieve:



Source: IPCC Special Report on Global Warming of 1.5°C

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Setting a Corporate GHG Reduction Target

Net Zero and/or Science-Based Targets

- Current corporate net zero targets **inconsistent**
  - Emission sources/activities included
  - Target timelines
  - Company-specifici approaches to achieving targets
- What does **"net zero"** mean at a corporate level?
  - *"To achieve a scale of value-chain emission reductions consistent with the depth of abatement achieved in pathways that limit warming to 1.5°C with no or limited overshoot and;*
  - *To neutralize the impact of any source of residual emissions that remains unfeasible to be eliminated by permanently removing an equivalent amount of atmospheric carbon dioxide. "*

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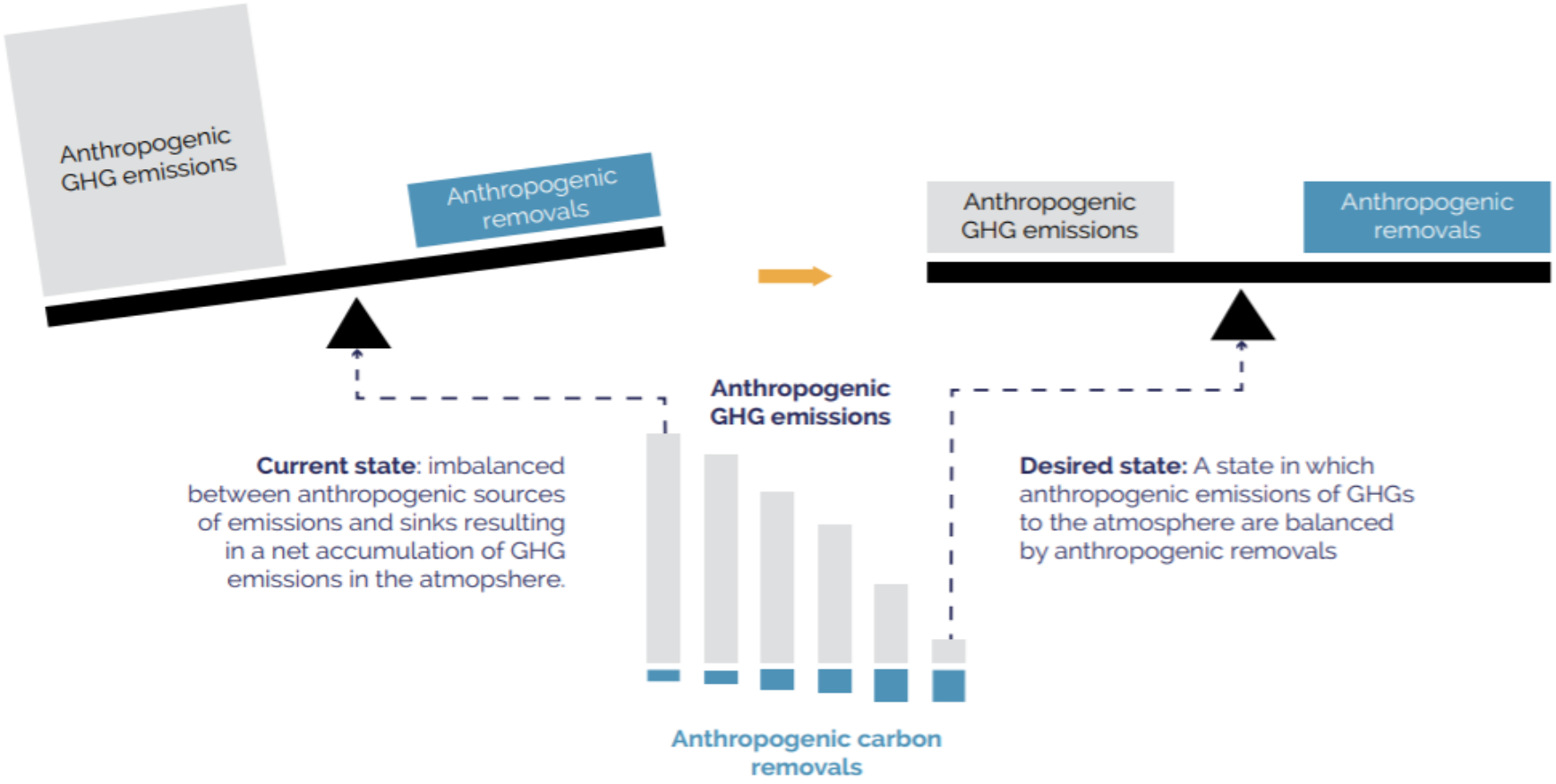
Source: *https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf*

What does “Net Zero” mean?



Source: *https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf*

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Setting a Corporate GHG Reduction Target

Mitigation Tactics

- Abatement: reduction or elimination of S1/S2/S3 emissions within the value chain (e.g., electrification of processes that require relatively low-temperature heat)
- Neutralization: removal and/or sequestration of CO_2 from the atmosphere to counterbalance emissions within the value chain that are not abated
- Compensation: offsetting of emissions within the value chain with reductions that occur outside of the value chain (e.g., purchase carbon credits)

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Setting a Corporate GHG Reduction Target

General Steps per GHG Protocol Corporate Standard

- Targets *should*:
  - Include a base year and a target year
  - Describe the boundaries included (global operations, domestic operating facilities, Scope 1 & 2, etc.)
  - Set a target level with a clearly defined basis:
    - Absolute based (e.g., “reduce GHG emissions by 25% over 2020 levels by 2030”)
    - Intensity based (e.g., “reduce GHG emissions per ton of product below 1% by 2030”)
- Targets *can*:
  - Have both a long-term aspiration goal as well as short-term/intermediate targets
  - Be multi-faceted (e.g., separate goals for different core businesses) and have an industry- or company-specific focus

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Setting a Corporate GHG Reduction Target

Step 1: Establish a Baseline

Develop comprehensive GHG Inventory

Determine what sources and GHG are material

Use to inform target boundaries

Step 2: Assess Impacts of Low Carbon Economy

Obtain Management/Internal Stakeholder Input

Benchmark Peers

Assess impacts of evolving climate policies and regulations

Research avenues to decarbonization

Step 3: Assess Mitigation Strategies

Determine technical feasibility, % reduction

Estimate costs & rank alternative strategies based on $/MT CO_2e

Assess Timeframe for implementation – available now vs. emerging technologies

Step 4: GHG Target Setting

Informed by Step 1, Step 2 & Step 3

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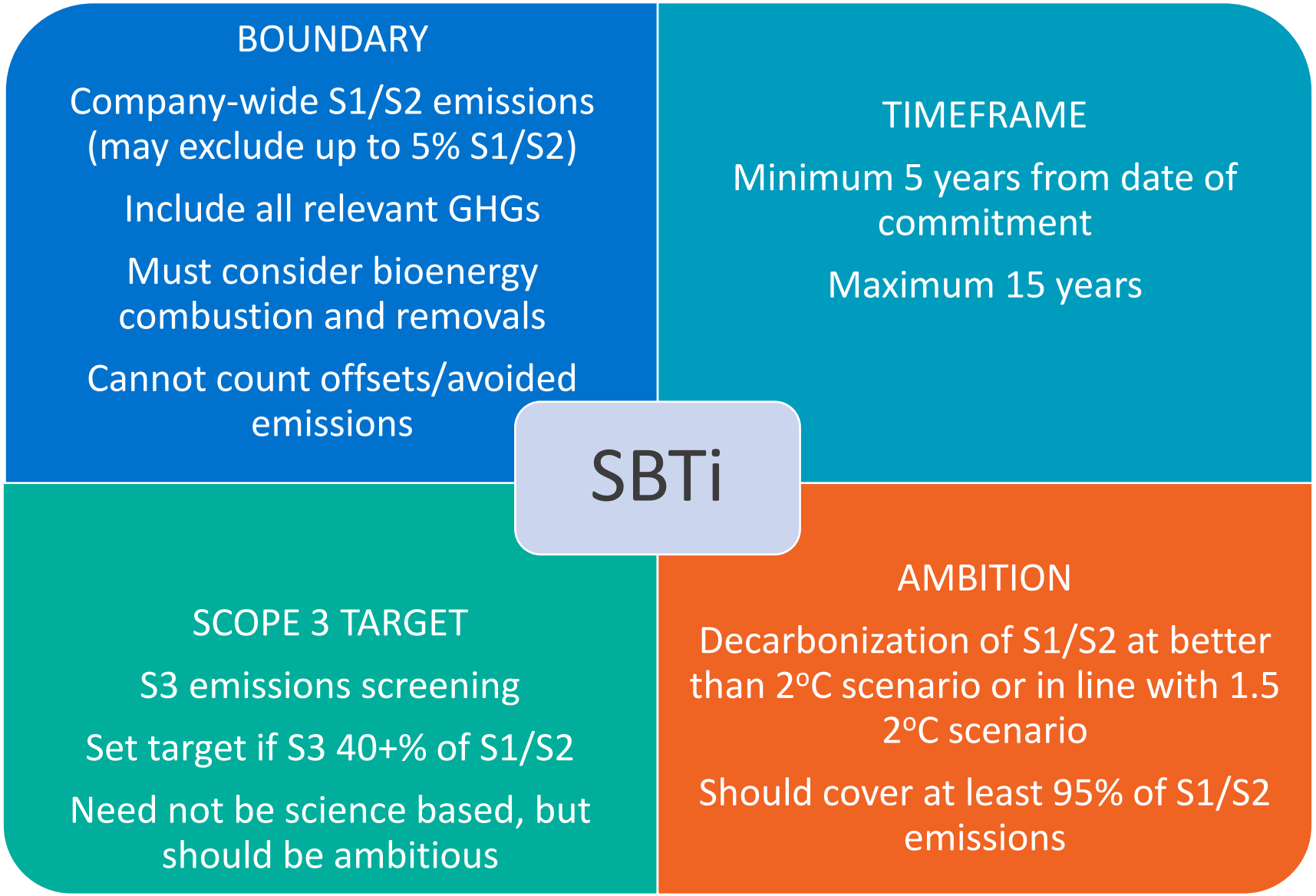
Setting a Corporate GHG Reduction Target



***Source**: https://sciencebasedtargets.org/resources/legacy/2017/04/SBTi-manual.pdf*

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Setting a Corporate GHG Reduction Target

Science Based Targets (SBTi) Target Setting Approaches

- Absolute Emissions Contraction:
  - % reduction in absolute emissions required is applied to all companies equally
  - Target overall reduction in amount of absolute GHG emitted by target year relative to base year
- Sectoral Decarbonization Approach (SDA):
  - Global carbon budget is divided by sector
  - SDA sets intensity targets (i.e., tonne CO_2e per tonne of product produced) for given sector; recommended for energy-intensive sectors
- Economic Intensity Contraction:
  - Carbon budget equated to global GDP
  - Company's share of emissions determined by gross profit ; target is intensity reduction of tCO_2e/$ value added

***Source**: https://sciencebasedtargets.org/resources/legacy/2017/04/SBTi-manual.pdf*

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Setting a Corporate GHG Reduction Target

Net Zero Targets - Areas for further development

- CDP/SBTi working to develop standard practice for setting corporate net zero goals
- Areas for further development:
  - Standard criteria for setting science-based net-zero target in corporate sector;
  - Validation protocol; and
  - Detailed guidance for setting targets and making credible claims

Source: *https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf*

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Applying Internal Carbon Pricing to Mitigation Assessment

- Companies set internal charge on amount of CO_2 emitted from assets/investment projects
- Provides insight on potential risks and opportunities associated with transition to low-carbon economy
- Provides incentive to drive energy efficiencies, reduce costs and guide capital investment decisions
- Internal carbon pricing varies from a few dollars to over $100/MT CO_2
- One source estimates that companies need to set price at $40-$80/MT in 2020 and between $50-$100/MT by 2030 to reduce emissions in line with Paris Agreement*

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*Report of the High-Level Commission on Carbon Prices, Carbon Pricing Leadership Coalition, May 2017, carbonpricingleadership.org

Questions?

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