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Purpose of Today's Presentation

To provide a broad understanding of Sustainability as it relates to Energy and Utilities



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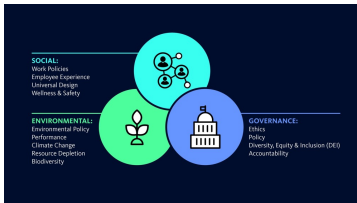
Sustainability

avoidance of the depletion of natural resources in order to maintain an ecological balance.

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ESG

- Environmental
- Social
- Governance



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ESG vs Sustainability

ESG: "... is focused on screening companies for investments, largely by understanding how a business is affected by environment and social issues (with an additional focus on whether a company has good governance in place to manage those risks and pressures)."

Sustainability: "... is a much broader idea, focusing on a company's role in society, how it creates value by managing its environmental and social impacts (both positive and negative), and how its actions affect a long range of stakeholders."

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Net-Zero or Carbon neutrality



a target of completely **negating** the amount of greenhouse **gases** produced by human activity, to be achieved by reducing emissions and implementing methods of **absorbing** carbon dioxide from the atmosphere.

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Greenhouse Gases (GHG)

- CO₂
- CH₄
- N₂O
- HFCS
- PFCs
- SF₆



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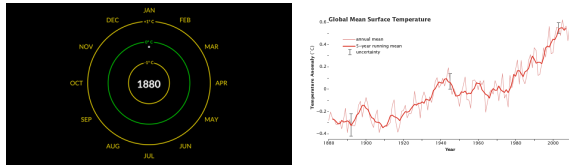
Why an Increase in GHG Matters?

- Ecosystems have always produced GHG
- An exponential increase since the 1st Industrial Revolution
- GHG emissions traps heat inside the ozone layer — resulting in rising average **global temperatures**
 - Melting glaciers — raising the sea levels and disrupting weather patterns
 - More frequent and more intense natural disasters
 - Other adverse impacts



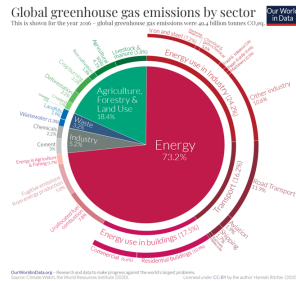
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Global Mean Surface Temperature



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GHG emissions by sector



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GHG Protocol

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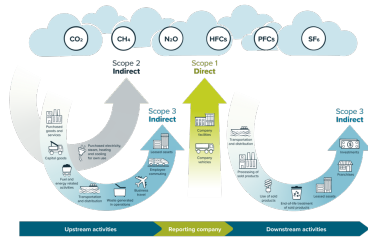
Greenhouse Gas Protocol

- Global standardized framework to measure and manage greenhouse gas (GHG) emissions
- Provides standards, guidance, tools and training for businesses and governments to measure and manage climate-warming emissions
- 20-year partnership between:
 - World Resource Institute (WRI)
 - World Business Council for Sustainability Development (WBCSD)
 - Various governments, industry associations, NGOs, businesses etc.

<https://ghgprotocol.org>

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Greenhouse Gases (GHG) Scopes



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Test our knowledge

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Which scope emissions does this activity represent?

- I burn natural gas in the building boiler to make Steam/Hot Water to heat my building.

- **Scope 1**



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Which scope emissions does this activity represent?

- I purchased 200 laptops for my team last year.

- **Scope 3**
- **Category 1 (Upstream)**



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Which scope emissions does this activity represent?

- I use UPS/FedEx to deliver our finished product to the customer.

- **Scope 3**
- **Category 9 (Downstream)**



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Which scope emissions does this activity represent?

- I purchase electricity from my local grid operator.
- **Scope 2 (Purchased Electricity)**



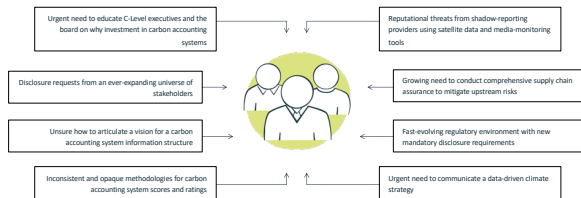
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Why is Carbon Accounting Important?



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Executives are under pressure from multiple carbon accounting challenges



Source: Verdantix

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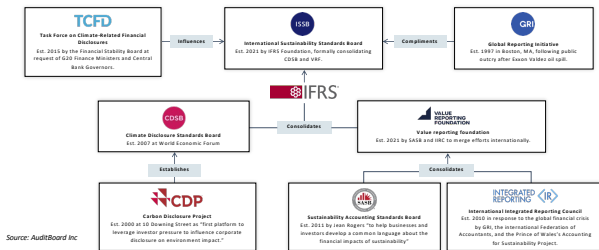
Key drivers for organizations

- Stakeholder driven
 - Students on campus
 - Citizens of city/county/state
- Regulation
 - Local laws (NYC Local Law 97)
 - State laws (California proposal)
 - Federal laws (SEC proposal)
- Investor pressure
- Preferential lending terms



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ESG Frameworks



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Carbon Receipts?



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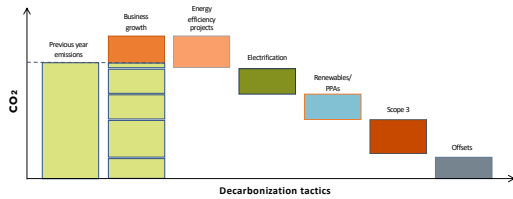
Getting started

- Identify and collect data that supports your organization's goals and reporting needs.

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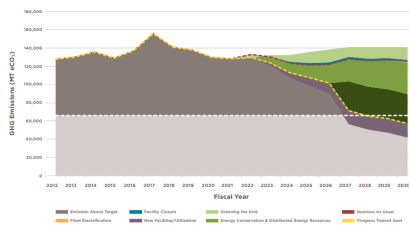
Journey to decarbonization

- There are a multitude of tactics to decarbonize your operations



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FIGURE 8. 50% SCOPE 1 & 2 EMISSIONS REDUCTION PLAN OVERVIEW

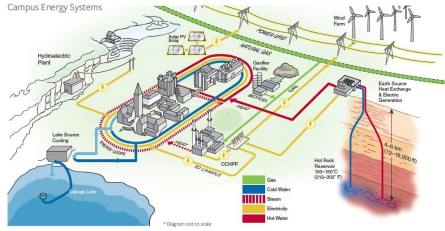


GHG Reduction Strategies



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Sustainable – Long Term Goals 2050  Cornell University



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Questions

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