

Introduction to CarbonHub, Financial Grade Carbon Accounting

CATALYST 





Agenda

Fundamentals of Greenhouse Gases

Why is carbon accounting important?

Journey to decarbonization

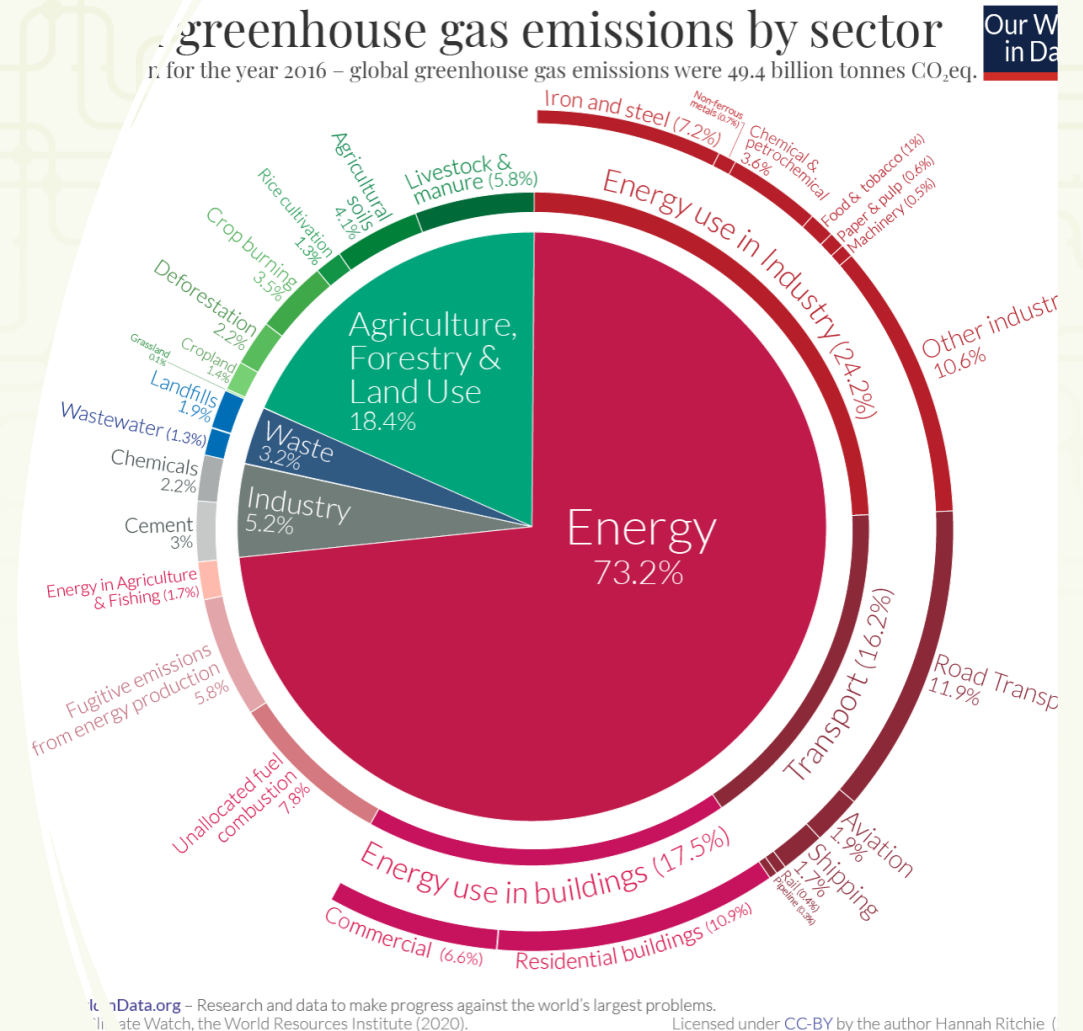
Energy & Sustainability ERP

CarbonHub

Fundamentals of GHG

Greenhouse Gases (GHG)

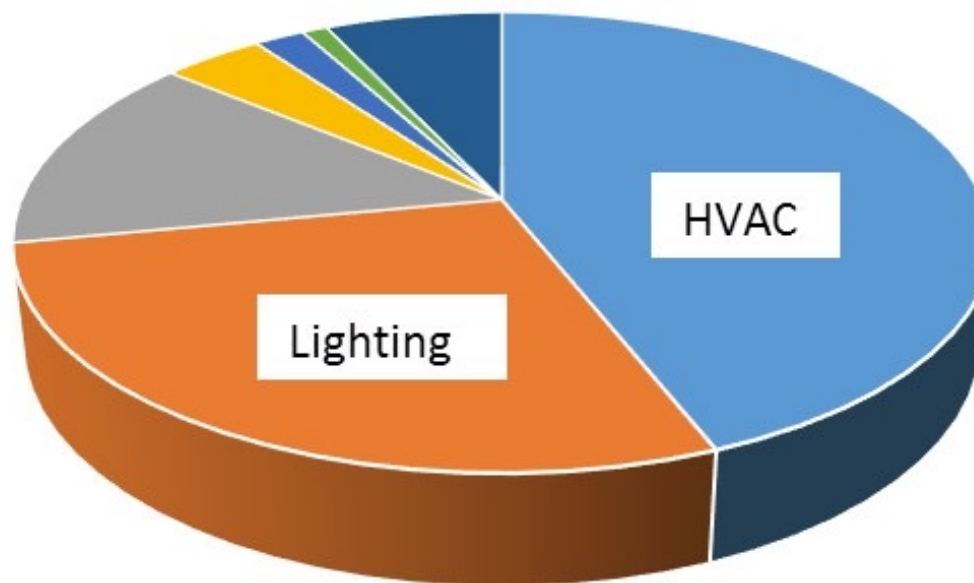
- Energy needs of human activity
- Common GHGs
 - CO₂
 - N₂O
 - CH₄
- Fugitive emissions from refrigerants
- CO₂ equivalent



HVAC & Lighting Energy

44% of a Commercial Building's Energy Consumption is Attributed to HVAC Systems

- HVAC 44%
- Lighting 28%
- Ofc. Equipment 14%
- Water Heat 4%
- Refrigeration 2%
- Cooking 1%
- Other 7%

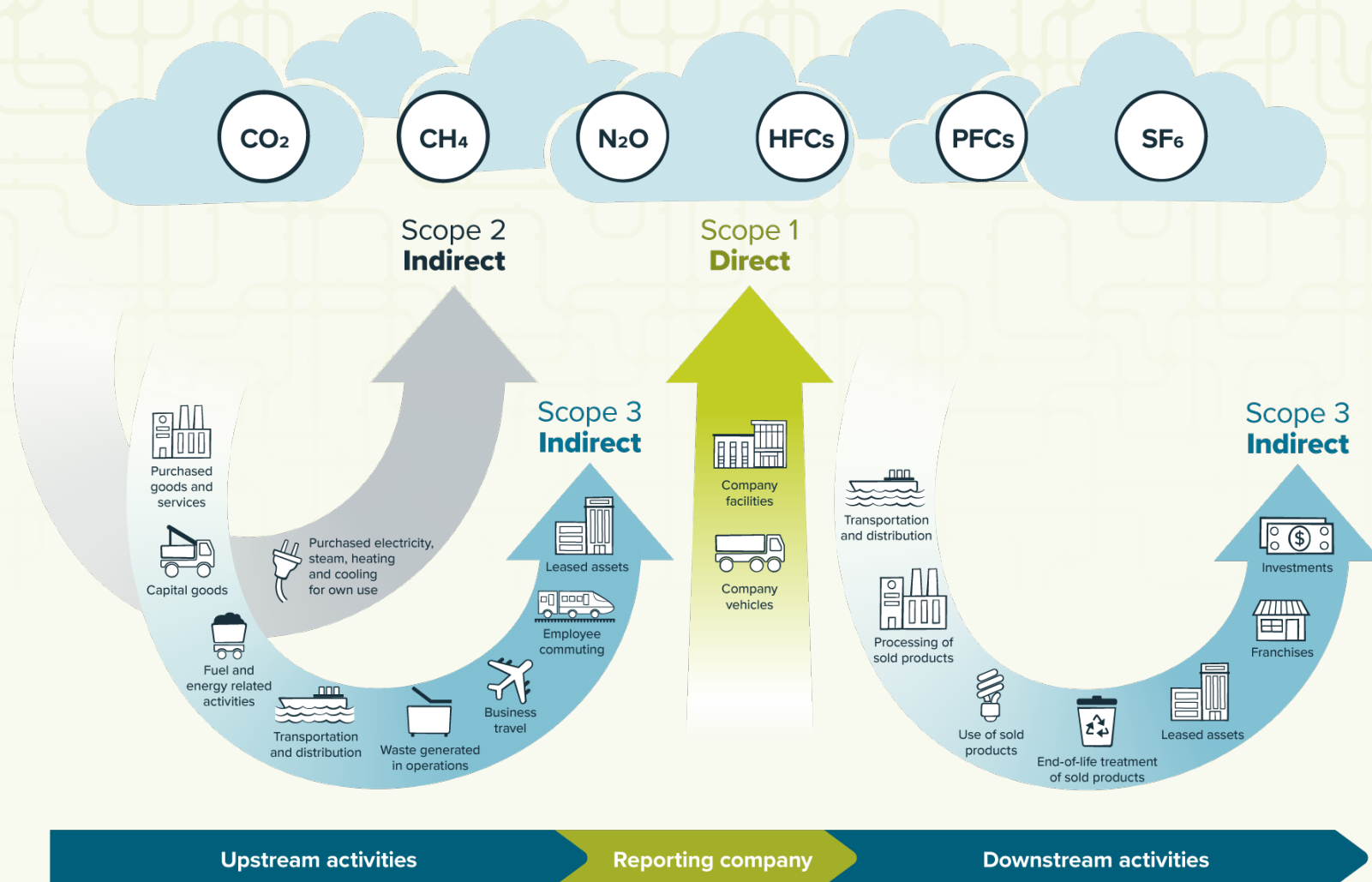


Greenhouse Gas Protocol

- 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>

GHG Scopes

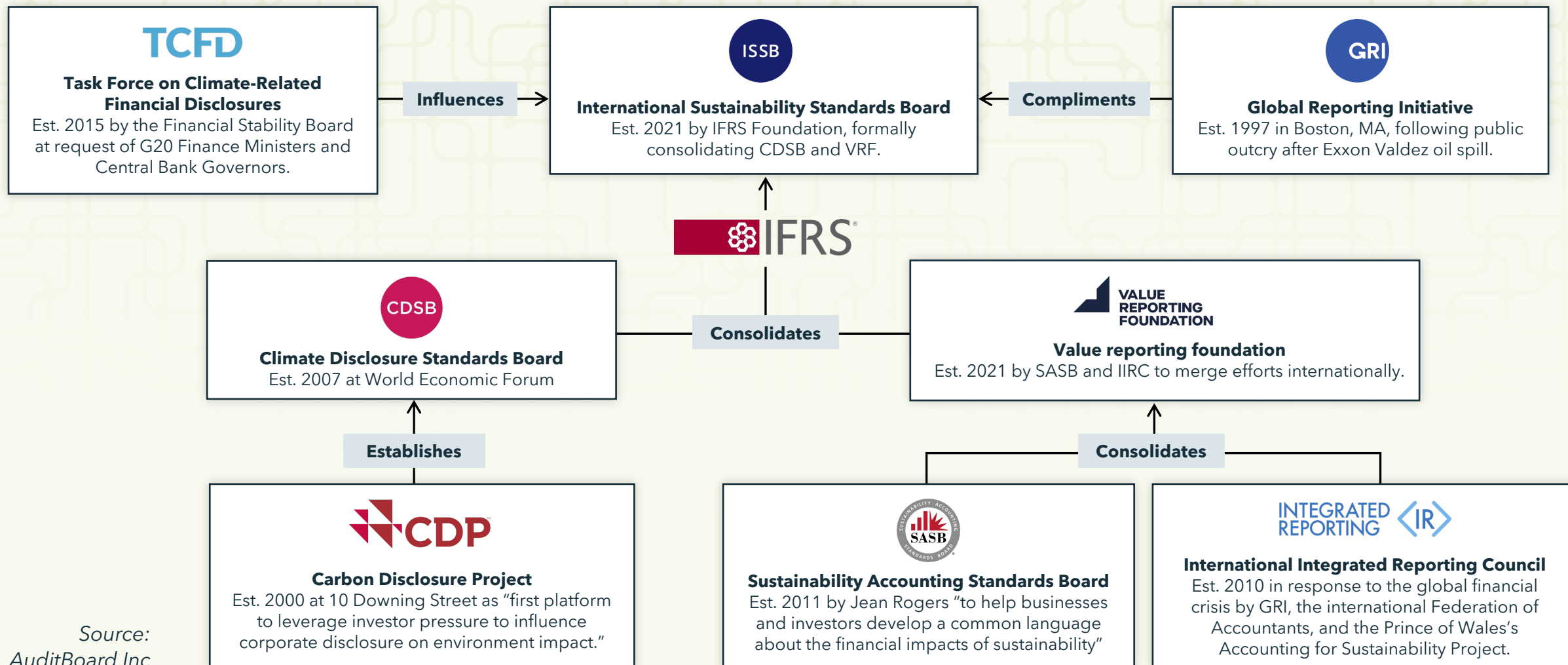


Why is Carbon Accounting Important?

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

Reporting frameworks require finance-grade reporting and continue to evolve



Source:
AuditBoard Inc

SEC proposed climate-related disclosures rule

The SEC's climate-related disclosure rule would require companies to disclose material climate risks, including emissions data and transition plans.

What companies would have to disclose¹

Material impacts



How climate can impact companies' bottom lines—in the short, medium, and long term—and what governance, strategy, and risk-management processes will address these impacts.

Greenhouse-gas emissions



Audited scopes 1 and 2 emissions and scope 3 emissions, if material (or if the entity has a scope 3 target), as well as safe harbor for liability from scope 3 emissions.

Target and transition plans



If available, climate-related targets or goals, accompanied by detailed transition plans, scenario analysis methods, internal carbon pricing, and how it is set, and the use of offsets and renewable-energy certificates.

¹This chart is a summary for general information only and does not constitute legal or regulatory advice. Advice of appropriate counsel must be sought prior to any consideration of the issues raised herein.

Source: US Securities and Exchange Commission (SEC) enhancement and standardization of climate-related disclosures, March 2022

**McKinsey
& Company**

State of California // Proposed state bills #253 and #261

California SB253

- Applies to companies with over \$1 billion in annual revenue that do business in the CA
- Includes Scope 1, 2 and 3 reporting
- Must be independently verified

California SB261

- Revenues > \$500 million
- Prepare a climate-related financial risk report



<https://www.greenbiz.com/article/california-its-time-all-big-businesses-report-climate>

Where are your organizations?
Who is responsible for next steps?

**Even companies
without sustainability goals
will need to support carbon
reporting requirements of
their supply chain.**

Carbon accounting maturity continuum

**Most organizations
are here...**



Annual data
collection

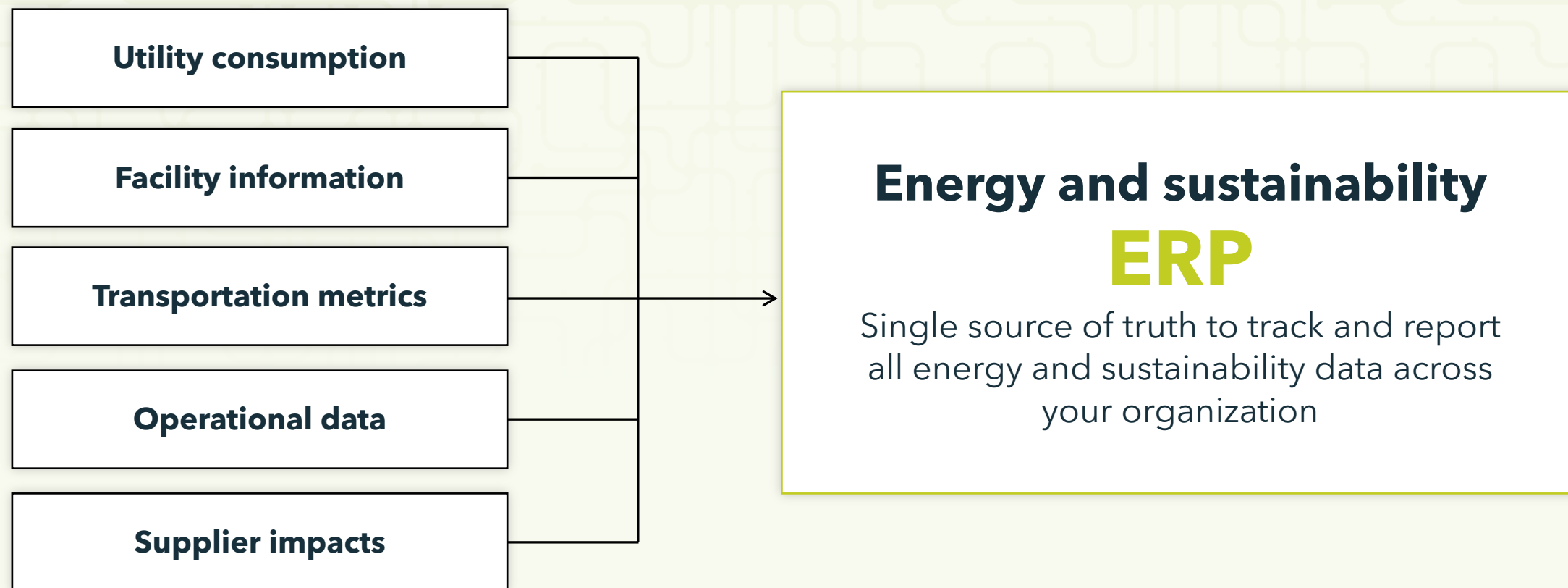
Annual carbon/
ESG reporting

Monthly carbon
reporting/analysis

Real-time
decarbonization
efforts

What can you do to prepare?

Leverage an energy and sustainability ERP



Energy and Sustainability ERP // The single source of truth

Get instant access to validated, actionable data you can trust to better manage resource consumption, reduce your carbon footprint, reach net-zero, and drive massive savings.



Portfolio-level energy and sustainability reporting

Manage and see it all.

Get accurate and reliable energy and utility data across your entire portfolio and streamline energy and accounting workflows.

Customer Data Type:
Utilities/Bill/Resources

Persona:
Finance/energy



Financial-grade greenhouse gas accounting

Target and track emissions.

An advanced, holistic view of financial-grade emissions data across your business with automatically applied factors to meet your ESG reporting needs.

Customer Data Type:
GHG activities

Persona:
Sustainability



Real-time energy and sustainability analytics

Dive deep. Respond quickly.

Dive deep into real-time performance of assets, devices, and sensors. Make quick, data-driven decisions for high-performance, net-zero buildings.

Customer Data Type:
Time-Series/Interval Energy

Persona:
Energy/facilities



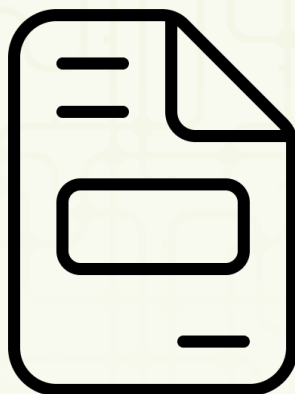
Bill Processing/Managed Services



Expanding EnergyCAP's energy and sustainability ERP capabilities

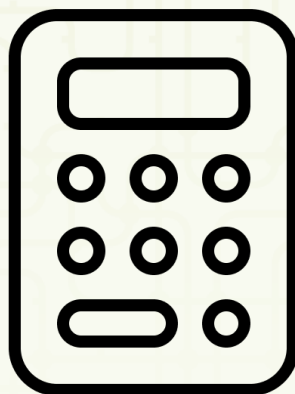
Calculating GHG Emissions from Utility Bills

Bill



500 kWh

System and
Custom Factors



0.297344
kg CO₂e
per kWh

×

=

Emissions



148.672
kg CO₂e

Converting Scope 1 and 2 to CO₂e with CarbonHub

Setup **default factors** for commodities where possible

Consider the best GHG conversion factor

Should you use default/providing values?

Do you need to create a **custom factor**?

Do you need to start from scratch with a custom factor or can you copy and modify a provided factor?

Consider how you will need to report on the data – should you use meter groups and/or your hierarchy to help segment data for reporting?

Watch out for possible “gotchas”

How often do your factors change? How will you keep them up-to-date?

CarbonHub provided factors will continue to be maintained/versioned

Which Global Warming Potential values will you use to convert GHG gases to CO₂ e?

CarbonHub allows you to choose (e.g., Assessment Report versions 4, 5, ...)

If you have offsets/PPAs/RECs, do you want to model them into your conversion factors or represent as a separate item? Location-based vs. market-based methods

CarbonHub allows you to separate values for location-based and market-based reporting – choose when you want to report each one

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CarbonHub Demo:

Default factors, custom factors, offsets/RECs

Tracking Scope 1, 2, and 3 emissions in CarbonHub

Track purchased utilities at the level of detail you have

Track individual utility bills when available or

Track monthly, quarterly, or annual data

Record date range and quantity

Map supply chain and other data to GHG factors

CarbonHub includes many built-in factors:

Published **EPA & IPCC** values for raw fuels

EPA eGrid & IEA electricity factors

EPA, Defra, EcolInvent, and other published
Scope 3 and lifecycle assessment (LCA) factors

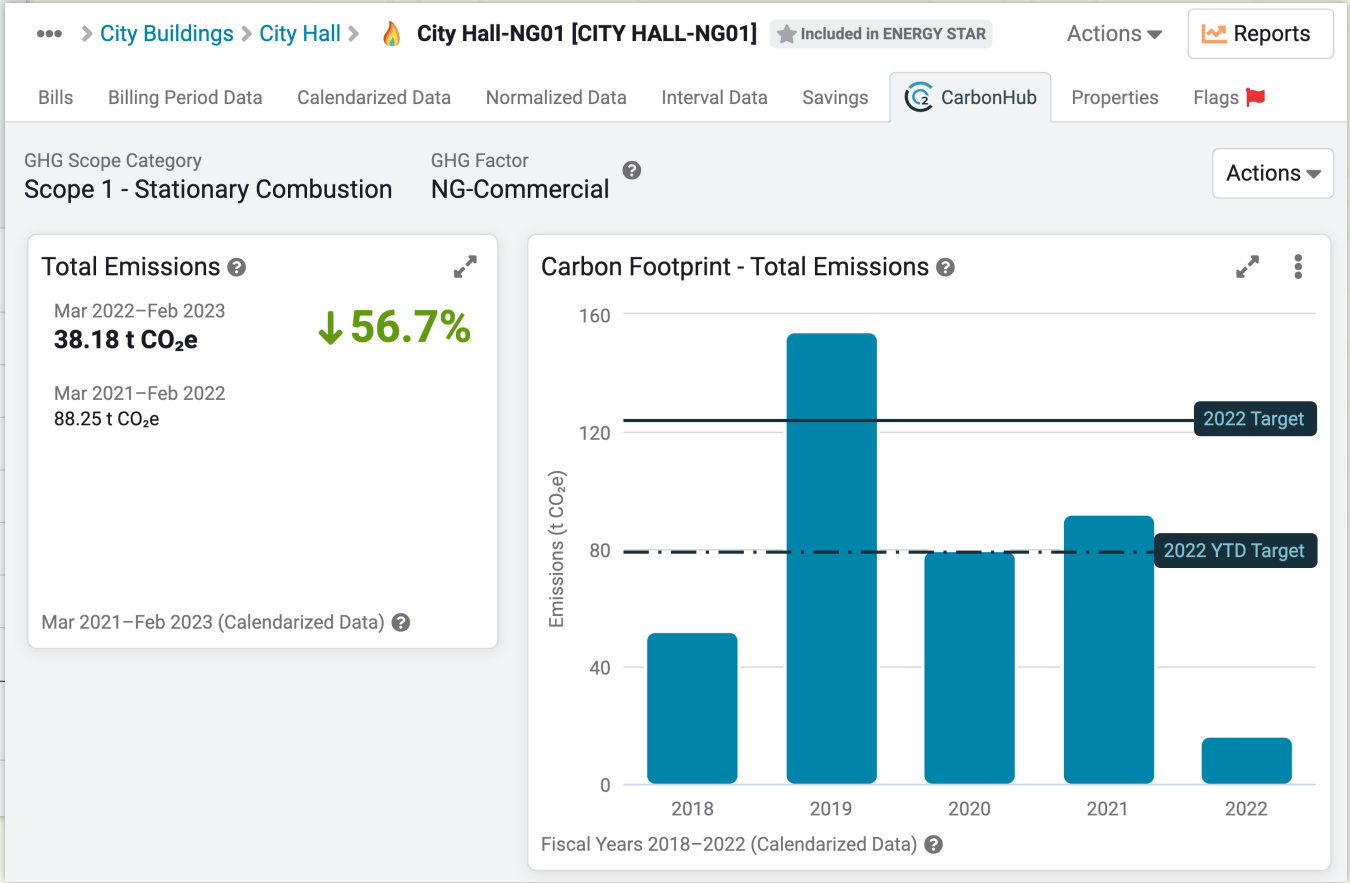
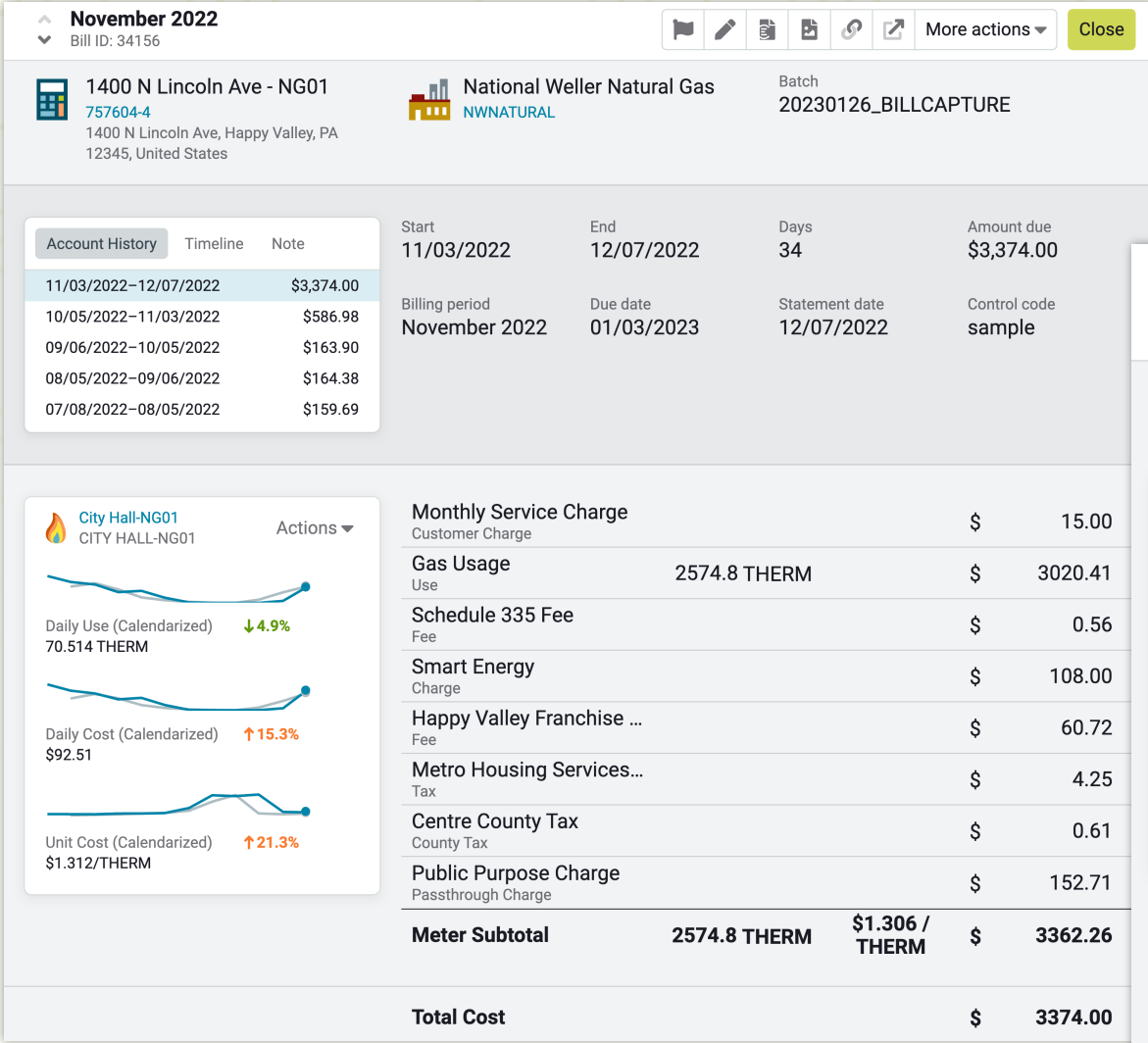
CarbonHub enables custom factors:

Factors from suppliers/vendors (PPAs)

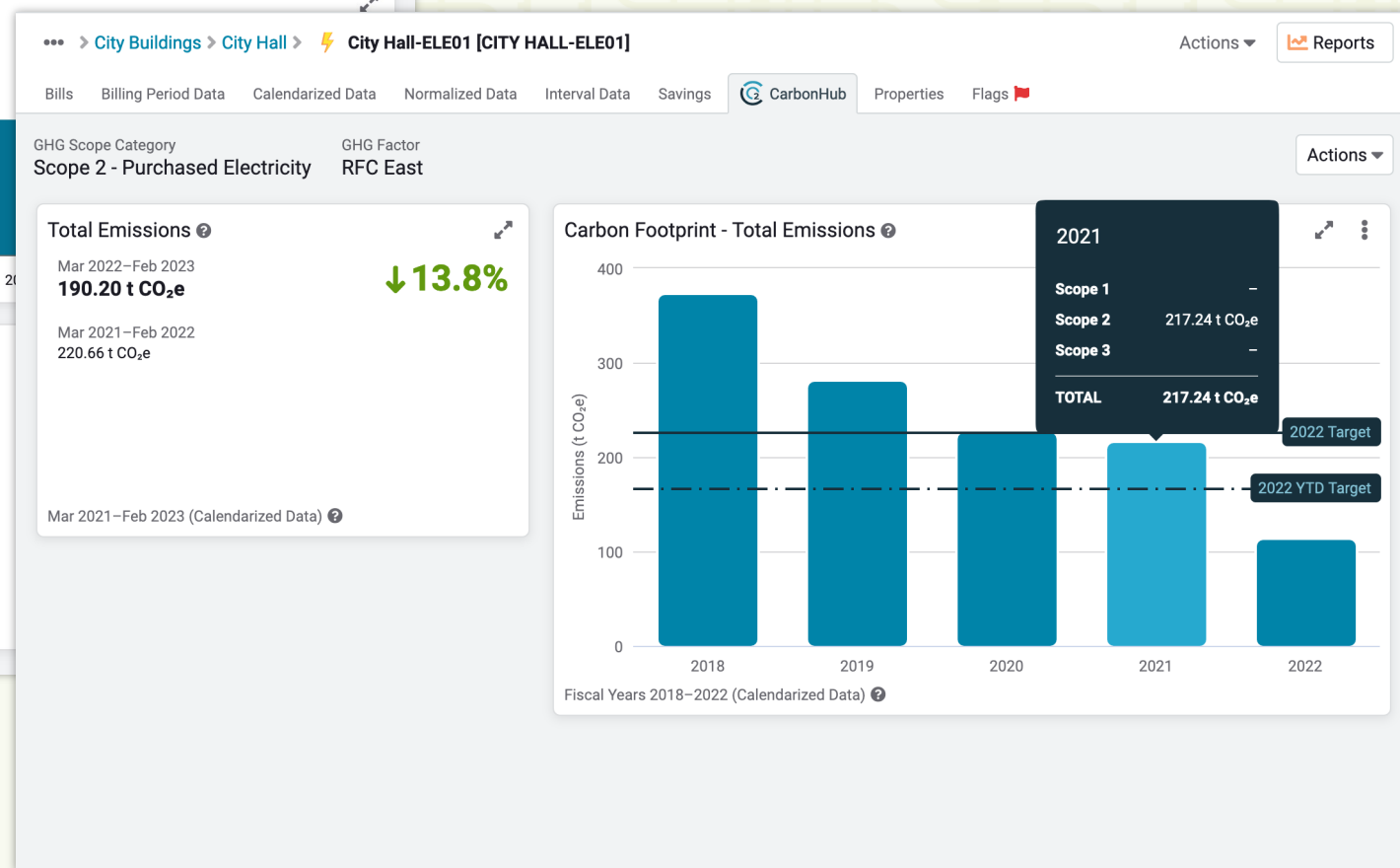
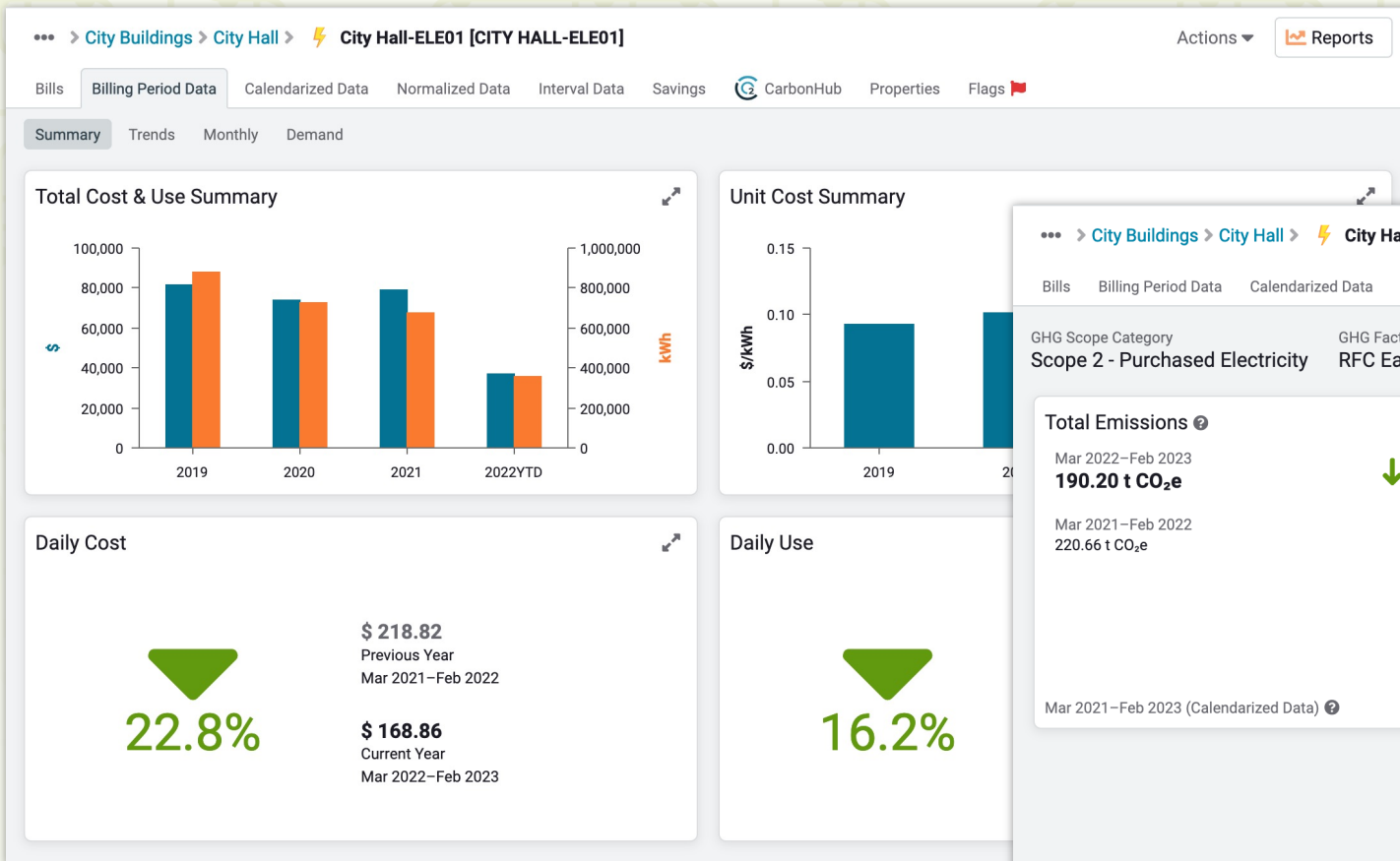
Custom fuel mix for your organization

Custom supply-chain emission
factors

Scope 1 // Use direct billing data (e.g., natural gas)



Scope 2 // Electricity – location-based reporting



Track Offsets and Renewable Energy Credits (RECs)

Carbon Offsets and RECs

- Carbon Offsets: Scope 1
- Carbon Offsets: Scope 2
- Carbon Offsets: Scope 3
- Electric RECs (non-solar)
- Solar RECs (SRECs)

GHG Scope Category

Scope 2 - Carbon Offsets and Adjustments (Scope 2)

GHG Factor

Carbon Offset

Actions

Total Emissions ?

Mar 2022–Feb 2023

-251.51 t CO₂e

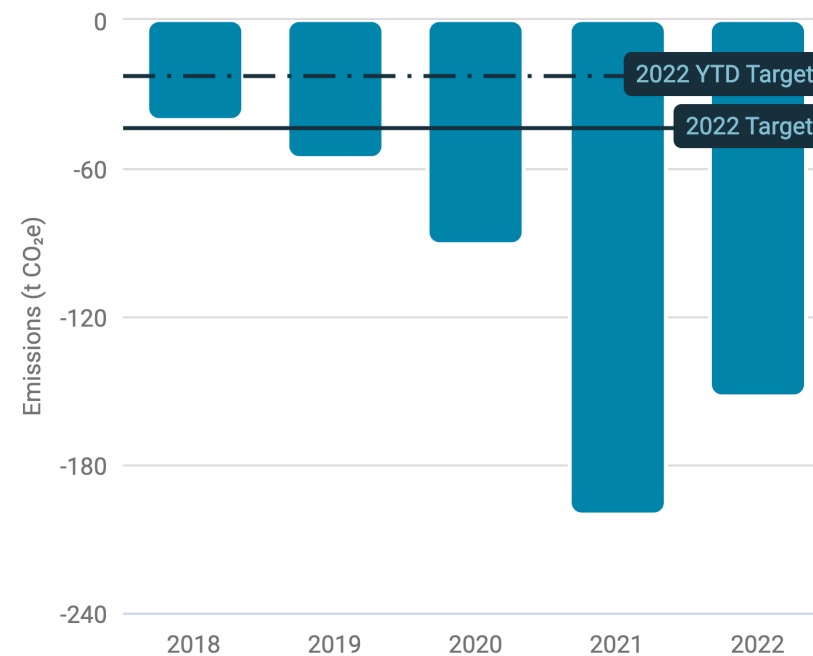
↓ 90.1%

Mar 2021–Feb 2022

-132.33 t CO₂e

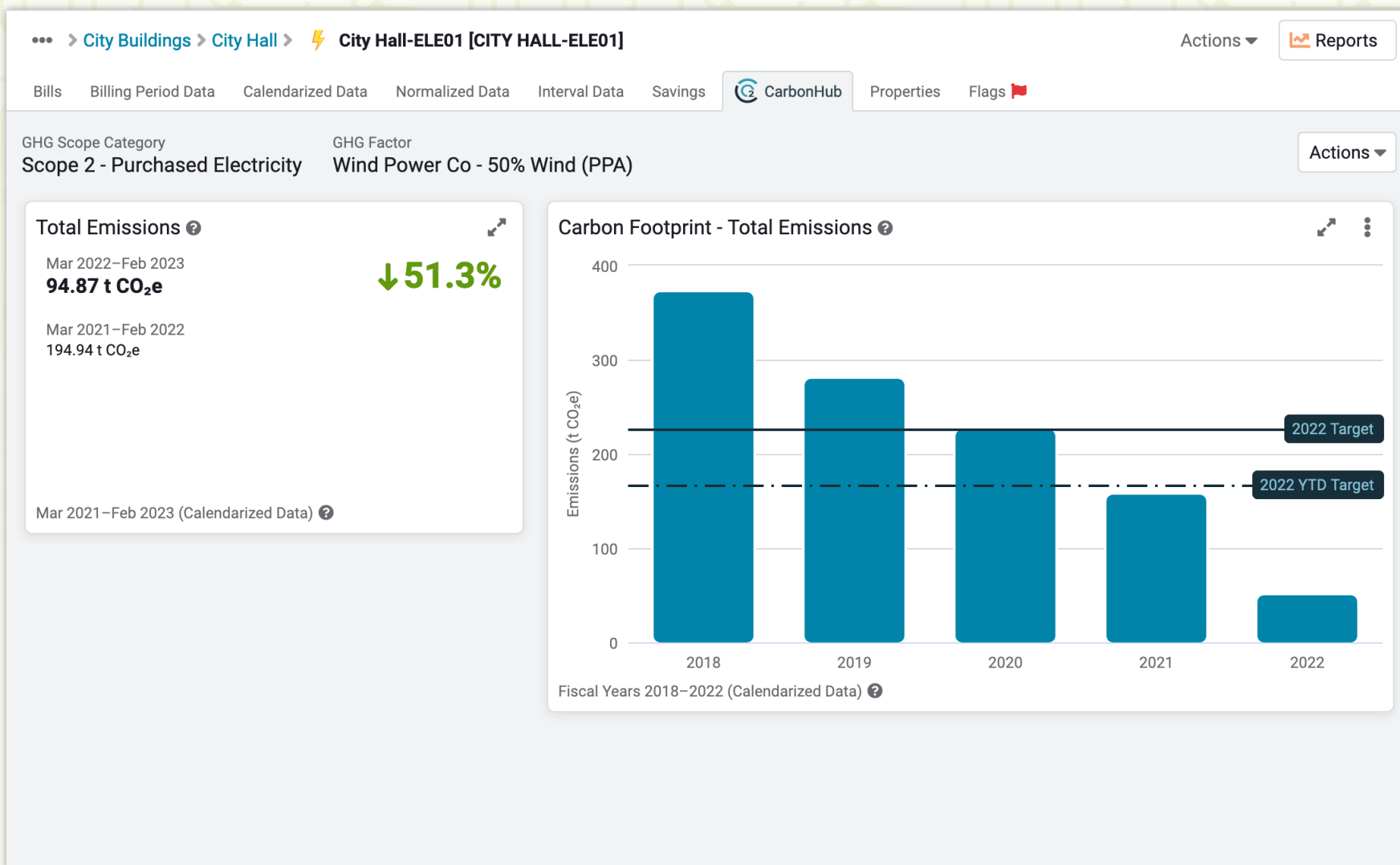
Mar 2021–Feb 2023 (Calendarized Data) ?

Carbon Footprint - Total Emissions ?



Fiscal Years 2018–2022 (Calendarized Data) ?

Scope 2 // Electricity – market-based reporting



Easily report both
location-based and
market-based
emissions

Options for Scope 3 reporting

**Most
Detailed/Accurate**

Detailed GHG values from suppliers/vendors

Actual use/purchase quantities x GHG factors

Estimated use/purchased quantities x GHG factors

**Least
Detailed/Accurate**

Actual spending/cost x spend-based GHG factors

Options for Scope 3 reporting

**Most
Detailed/Accurate**

Detailed GHG values from suppliers/vendors

Actual use/purchase quantities x GHG factors

Estimated use/purchased quantities x GHG factors

**Least
Detailed/Accurate**

Actual spending/cost x spend-based GHG factors

Not all data types require the same level of detail

GHG Protocol provides guidance for capturing Scope 3 for your business

CarbonHub can accommodate all those scenarios

https://ghgprotocol.org/sites/default/files/2022-12/Intro_GHGP_Tech.pdf

Scope 3 // Cost-based tracking

ENC Purchased Goods and Services

-  Accounting Fees
-  Advertising and Marketing Expense
-  Financial Service Fees
-  Hardware
-  Hosting
-  Legal Fees
-  Printing Expense
-  Software
-  Stationary

U.S. and other cost-based factors available in CarbonHub

UNITED STATES (US)

Accounting, tax preparation, bookkeeping, and payroll (USD, NAICS 541200)

Advertising and public relations (USD, NAICS 541800)

Air transport (USD, NAICS 481000)

All other food and drinking places (USD, NAICS 722A00)

Computers (USD, NAICS 334111)

Data processing and hosting (USD, NAICS 518200)

Hotels and campgrounds (USD, NAICS 721000)




Investment advice, portfolio management, and other financial advising services (USD, NAICS 523900)

Scope 3 // Use, volume, distance, and weight-based tracking

▼ 06. Business Travel

-  Long Haul Flights
-  Medium Haul Flights
-  Rental Cars
-  Short Haul Flights

▼ 07. Employee Commuting

-  Bus
-  Commuter Rail
-  Passenger Vehicles

SCOPE 3

01. Purchased Goods and Services

02. Capital Goods

03. Fuel and Energy Related Activities

04. Upstream Transportation & Distribution

05. Waste Generated in Operations

06. Business Travel

07. Employee Commuting

08. Upstream Leased Assets

09. Downstream Transportation & Distribution

10. Processing of Sold Products

Use provided CarbonHub factors or easily create your own

Integrated views and reports of all emissions and sources

Emissions Ranking by Building

Happy Valley Center	957.80 t CO ₂ e
Organic Farm	489.46 t CO ₂ e
Data Center	433.09 t CO ₂ e
Communications Center	431.17 t CO ₂ e
Train Station	254.61 t CO ₂ e
City Hall	228.38 t CO ₂ e

Mar 2022–Feb 2023 (Calendarized Data)

Total 4,553.41 t CO₂e

Emissions by Scope Category

Scope 3: 07. Employee Commuting	4,828.30 t CO ₂ e
Scope 2: Purchased Electricity	4,212.86 t CO ₂ e
Scope 1: Mobile Combustion	3,312.60 t CO ₂ e
Scope 3: 01. Purchased Goods and Services	1,673.73 t CO ₂ e
Scope 1: Stationary Combustion	
Scope 3: 06. Business Travel	

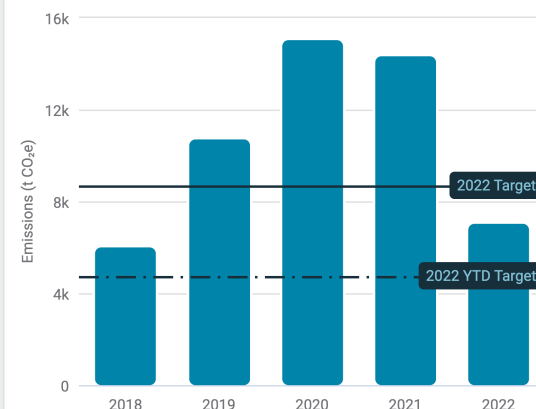
Mar 2022–Feb 2023 (Calendarized Data)

GHG Performance by Commodity

Commodity	Emissions (t CO ₂ e) ↓	Use (MMBtu)
Total	↓ 15%	
Ground Transportation	↑ 1%	
Electric	↓ 29%	
Purchased Goods	↑ 419%	

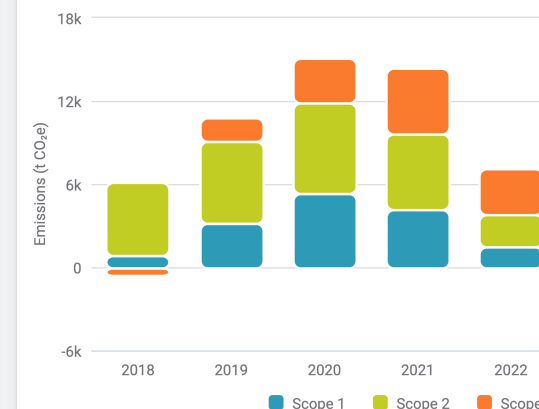
■ Mar 2021–Feb 2022 ■ Mar 2022–Feb 2023 (Calendarized Data)

Carbon Footprint - Total Emissions



Fiscal Years 2018–2022 (Calendarized Data)

Carbon Footprint by Scope



Fiscal Years 2018–2022 (Calendarized Data)

Total Emissions

Mar 2022–Feb 2023
12,067.32 t CO₂e ↓ 14.7%

Mar 2021–Feb 2022
14,139.12 t CO₂e

Mar 2021–Feb 2023 (Calendarized Data)

Scope 1 Emissions

Mar 2022–Feb 2023
2,582.10 t CO₂e ↓ 45.2%

Mar 2021–Feb 2022
4,715.68 t CO₂e

Mar 2021–Feb 2023 (Calendarized Data)

Scope 2 Emissions

Mar 2022–Feb 2023
3,961.27 t CO₂e ↓ 31.7%

Mar 2021–Feb 2022
5,799.02 t CO₂e

Mar 2021–Feb 2023 (Calendarized Data)

Scope 3 Emissions

Mar 2022–Feb 2023
5,523.95 t CO₂e ↑ 52.4%

Mar 2021–Feb 2022
3,624.41 t CO₂e

Mar 2021–Feb 2023 (Calendarized Data)

Easily group/filter results
(e.g., with and without offsets)



Demo

Expanding EnergyCAP's energy and sustainability ERP capabilities

EnergyCAP Case Study

EnergyCAP Case Study: What to track?

Consider your impacts

Walk through the Scope 3 categories

Select the ones that apply: Purchased good and services, business travel, employee commuting

Where can you get data?

What data is already available to you? Financial records

What data is available within your organization? Category spending/GL breakdown

What data is available from suppliers/vendors? Not sure - need to start checking

Are you missing important data?

Can you use expert judgement, estimates, or similar data? Employee commuting

EnergyCAP Case Study: Employee Commuting

Employee Commuting

Numbers are fairly well known

Good options for estimates

Lots of public data to support estimates

Mechanics of Calculations

of employees

Driving/mass transit miles per employee

Total miles driven/ridden per year

ENC Commuting Calculations/Demo

EnergyCAP Case Study: Spend-based analysis

Which factors will we use to map cost?

Advertising & Marketing Expense → Advertising and public relations (USD, NAICS 541800)

Airfare → Air transport (USD, NAICS 481000)

Lodging → Hotels and campgrounds (USD, NAICS 721000)

Meals & Entertainment → All other food and drinking places (USD, NAICS 722A00)

Printing Expense → Photography and photocopying equipment (USD, NAICS 333316)

Hosting → Data processing and hosting (USD, NAICS 518200)

Accounting Fees → Accounting, tax preparation, bookkeeping, and payroll (USD, NAICS 541200)

ENC Spend-Based GHG Tracking Demo

Takeaway:

Carbon reporting doesn't have to be as daunting as it first seems

CarbonHub Reporting

Existing Reports Updated for CarbonHub

Report-01: Monthly Trends

Report-08: Monthly Trends - One page per year

Report-10: Two-Year Comparison

New CarbonHub Reports

Report-44: Emissions Summary

Report-45: Emissions by Building or Organization

Report-46: Emissions Details (Excel only) - **Swiss Army Knife for GHG Data**

Demo: CarbonHub Reports

Questions?

Session Survey

conferences.energycap.com/surveys

