CarbonHub: Financial-grade Carbon Accounting

CATALYSTA

Session Agenda

Overview of CarbonHub and EnergyCAP's Energy & Sustainability ERP

Carbon/greenhouse gas tracking – a quick primer

Where do you start?

Scope 1 and 2 tracking

Options/approaches for Scope 3 reporting

EnergyCAP corporate case study

CarbonHub reporting

CarbonHub facts

Q&A

EnergyCAP's Energy and Sustainability ERP Platform

Enterprise Resource Planning (ERP):

comprehensive software package used by companies to streamline and coordinate operations and activities across business functions

Evolution from spreadsheets to ERP software // Sustainability tracking

The status quo

Manual utility bills, meter reads, data collation in spreadsheets

- Occurs annually
- Difficult to access data
- Manual labor
- Hard to maintain and update
- High chance of error
- Data silos
- Reactive reporting

Using software

Energy and sustainability ERP

- Automatically captures data
- Auditable, financial-grade
- Real-time updates
- Reduces/eliminates manual labor
- Reduces error
- Better collaboration
- Scalable, reportable, and reliable
- Proactive: Monitor and respond in real time

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.

CARBONHUB. An EnergyCAP Solution

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

ENERGYCAP.

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

Wattics An EnergyCAP Solution

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

CAPture Services: Bill CAPture, Bill Processing/Managed Services

A single platform for the entire team

EnergyCAP's ERP brings energy, sustainability, and finance teams together to capture, allocate, analyze, and report the data the way they want it.

Energy managers

Operate from one single source of truth with accurate and reliable data. Create, verify, and visualize the energy program you need now.

Sustainability leaders

Automatically convert your data into greenhouse gas emissions and provide a holistic view of sustainability across your organization.

Finance leaders

Get a tool that supports the unique demands of energy accounting. With EnergyCAP, you get a partner that enhances your already-predictable system.

Fundamentals of Greenhouse Gas (GHG) Reporting

Greenhouse Gases (GHG) – Trapping some of earth's outgoing energy

Human-based GHG Impact

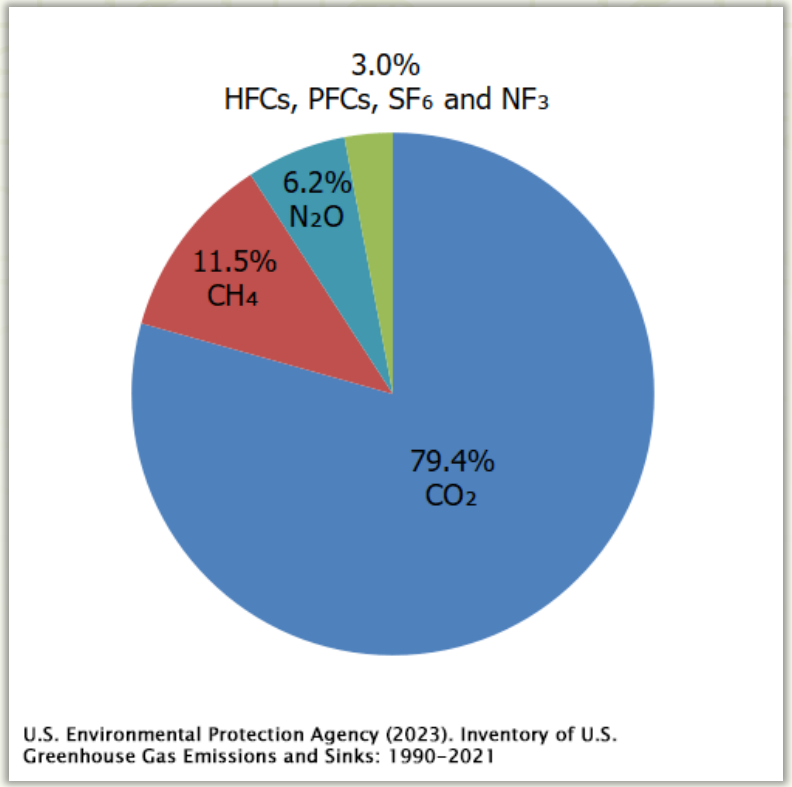
Fueling human energy needs

Fugitive emissions from refrigerants

Common GHGs and warming potentials

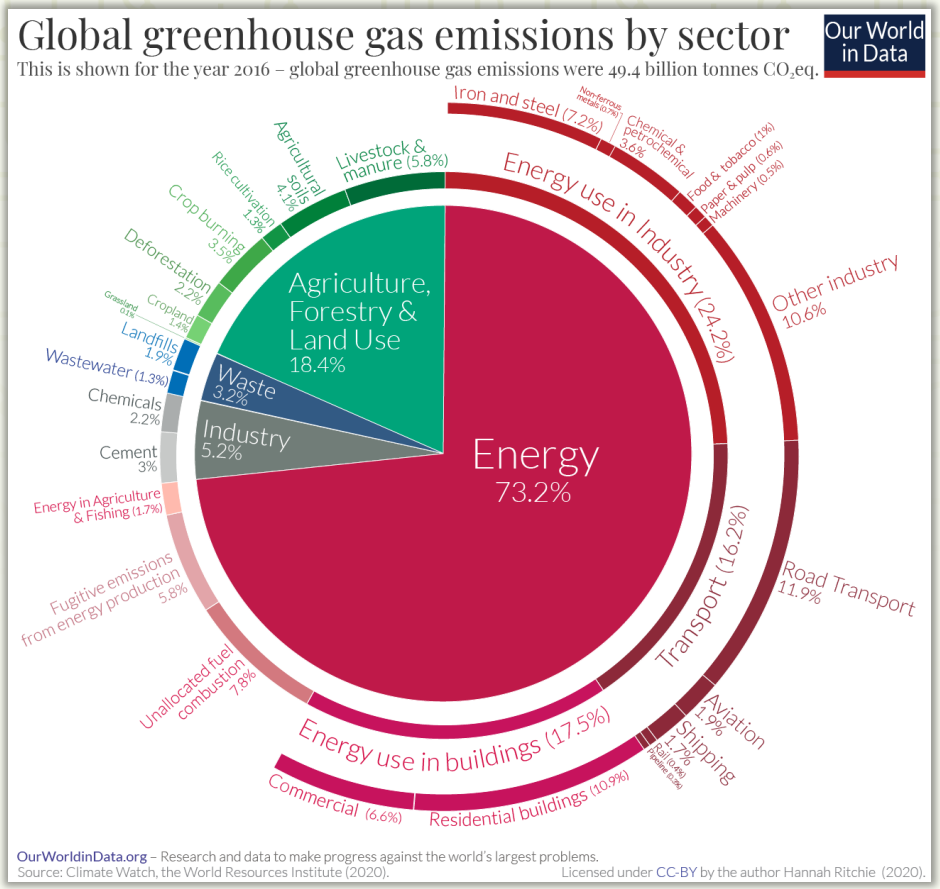
- CO_2: Carbon Dioxide
- CH_4: Methane
  (about 25x more impactful than CO_2)
- N_2O: Nitrous Oxide
  (about 298x more impactful than CO_2)

CO_2e – Carbon Dioxide Equivalent



U.S. Environmental Protection Agency (2023). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2021

Buildings and utilities have significant impacts on GHG emissions



This isn't a surprise to most EnergyCAP customers.

There's a natural connection between tracking energy/utilities and GHG.

However, few energy/utility experts have been trained on the details of GHG tracking and carbon accounting.

Greenhouse Gas Protocol

Global standardized framework to measure and manage greenhouse gas (GHG) emissions

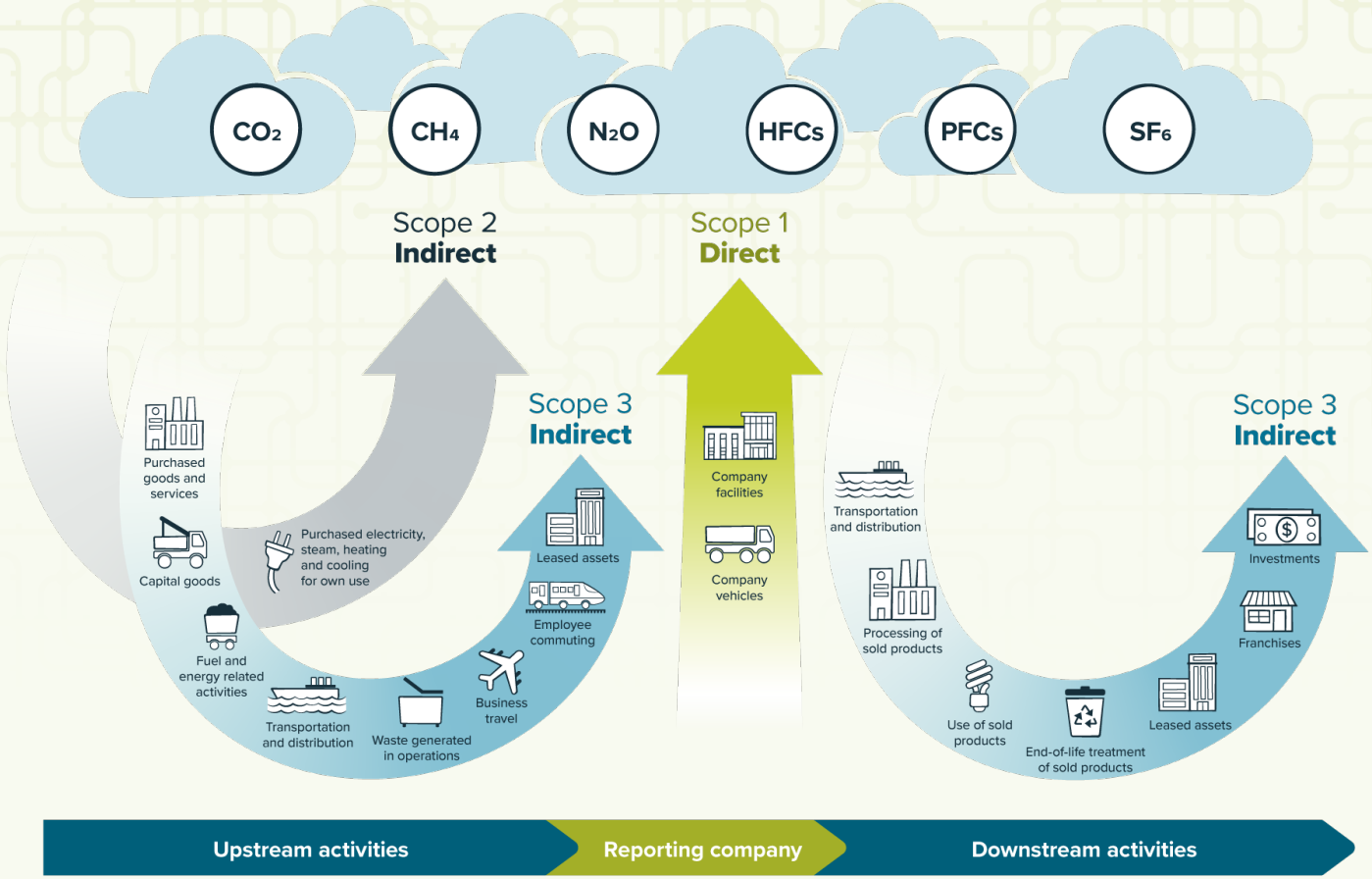
Provides standards, guidance, tools and training for businesses and governments to measure and manage climate-warming emissions

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



https://ghgprotocol.org

Test your knowledge

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

Which scope emissions does this activity represent?

I purchased 200 laptops for my team last year.

Scope 3

Category 1 (Upstream)

Which scope emissions does this activity represent?

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

Scope 3

Category 9 (Downstream)

Which scope emissions does this activity represent?

I purchase electricity from my local grid operator.

Scope 2 (Purchased Electricity)

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)
- Global/European (CSRD)

Investor pressure

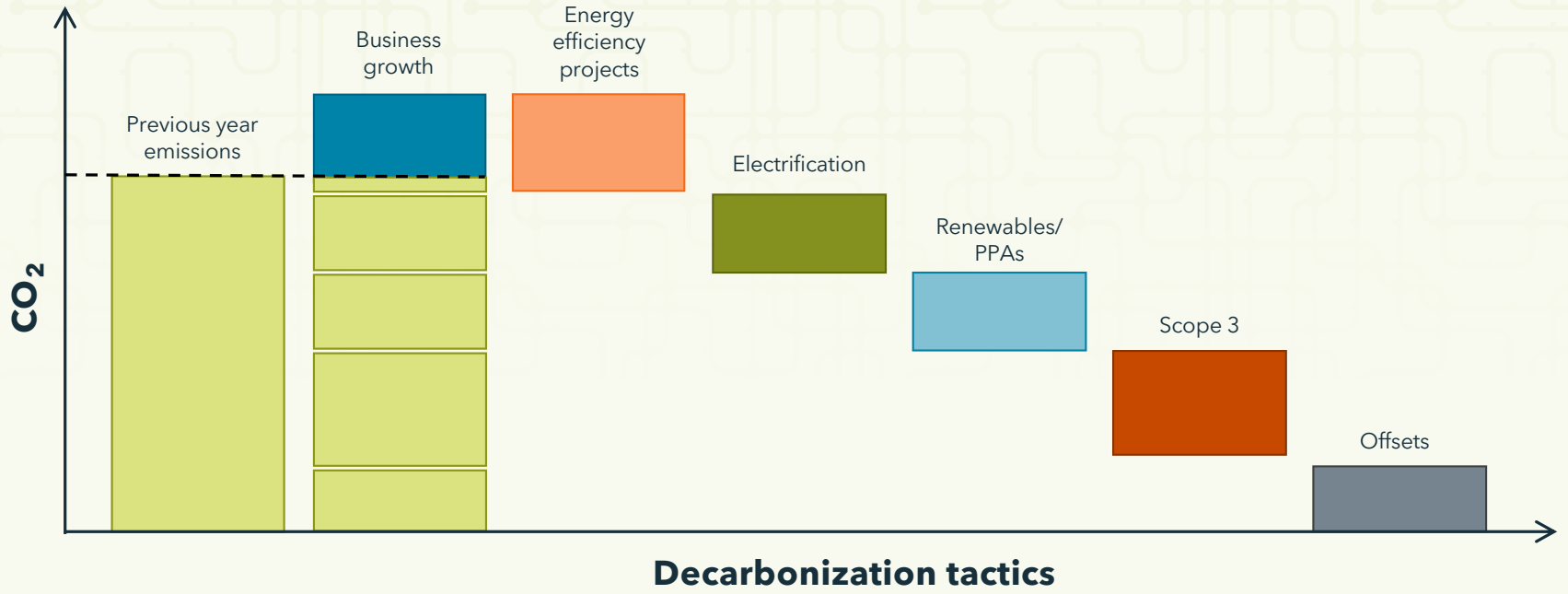
Preferential lending terms

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

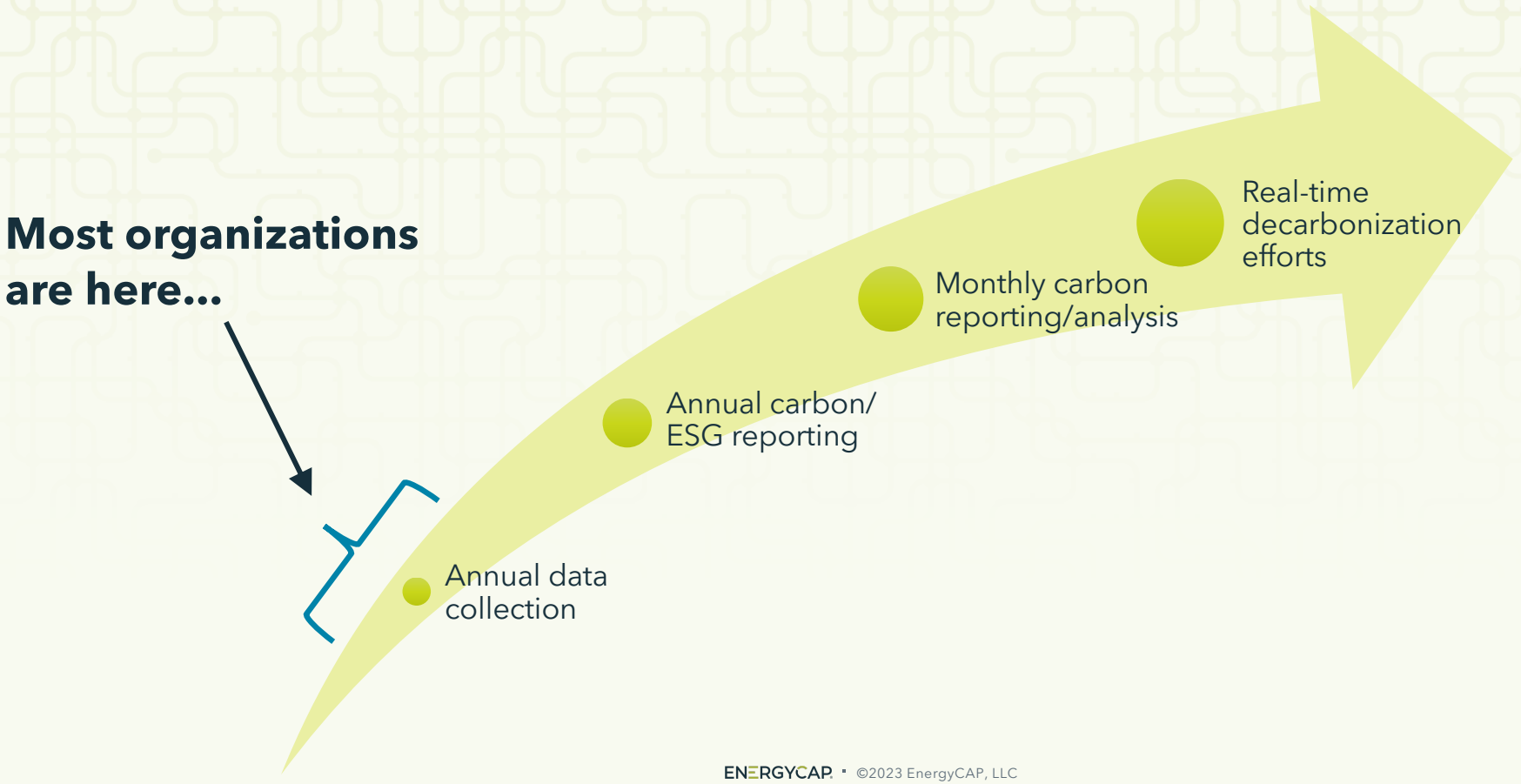
Where do you start?

Journey to decarbonization

There are a multitude of tactics to decarbonize your operations

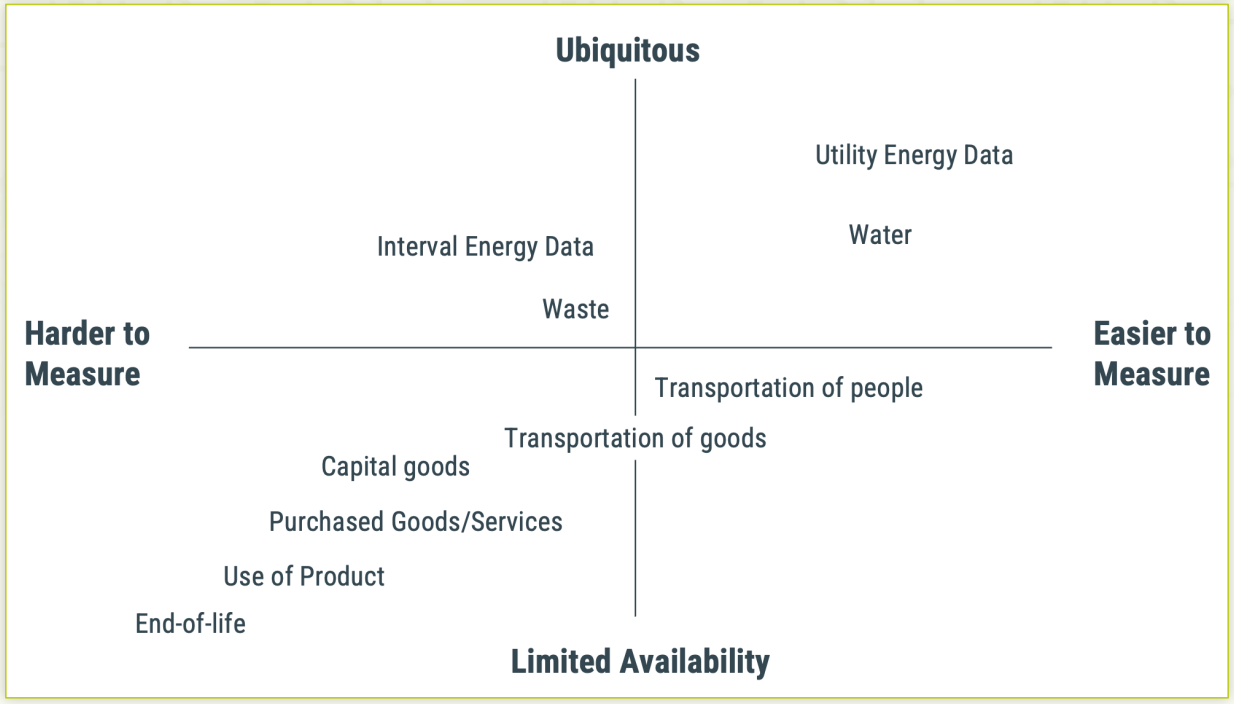


The Decarbonization Data Journey



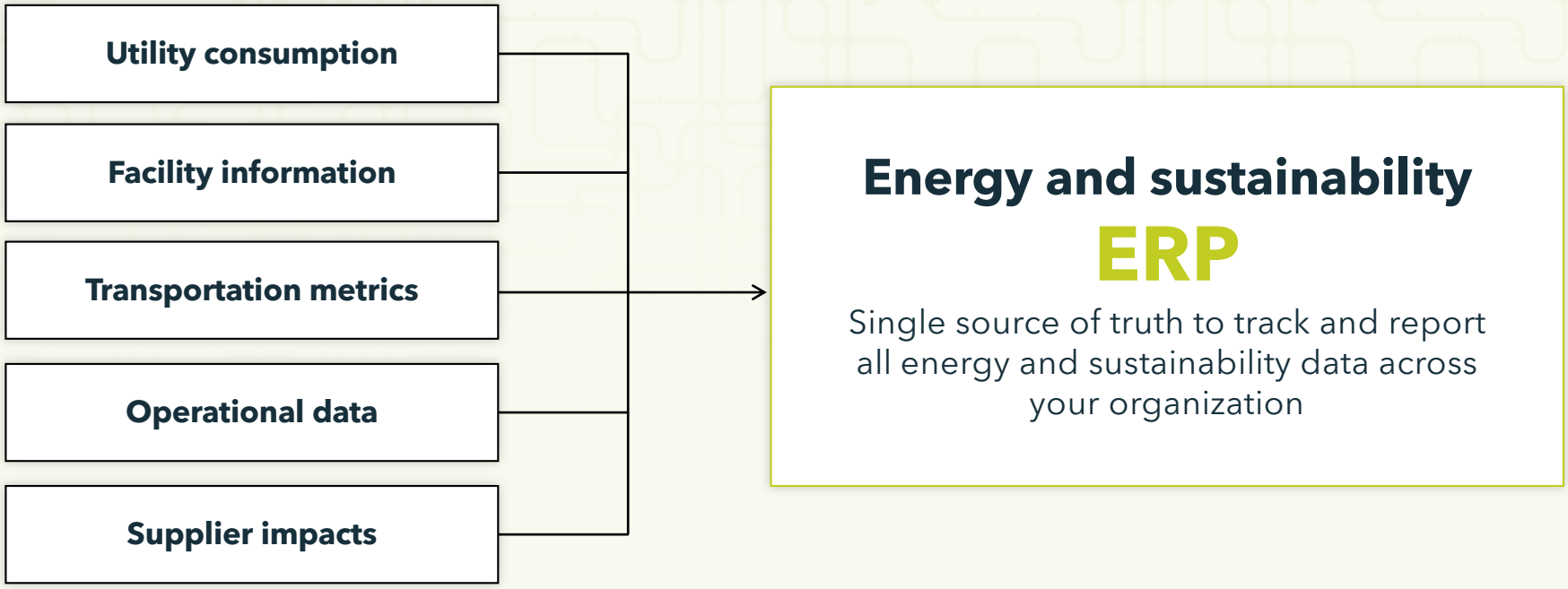
Getting started

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



What can you do to prepare?

Leverage an energy and sustainability ERP



Getting Started: Start with the easy “stuff”

Tracking Scope 1 and 2 Emissions:

- Use the data you’re already receiving on **utility bills** (dates, usage)
  - Make sure you’re getting all the data – accurate use information is critical
- Map purchased utilities to appropriate **GHG factors**
  - Published EPA/IPCC values for raw fuels
  - EPA eGrid factors
  - Other published domestic/international factors
  - Factors from suppliers/vendors
  - Custom mix for your organization

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  - Published EPA/IPCC values for raw fuels
  - EPA eGrid factors, IEA electricity factors
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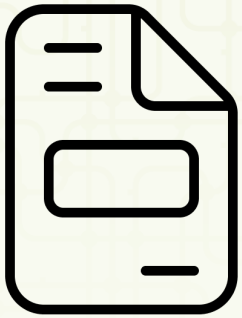
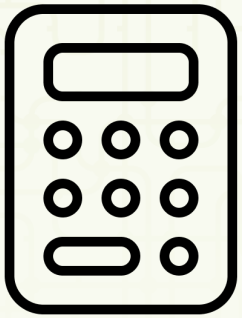
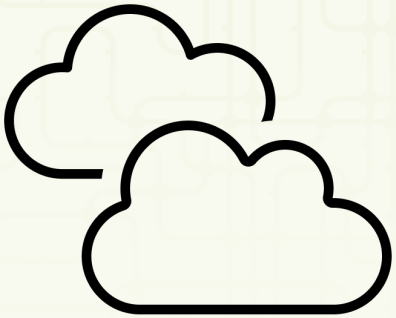
Calculating GHG Emissions from Utility Bills

Bill		System and Custom Factors		Emissions
				
500 kWh	×	**0.297344** kg CO_2e per kWh	=	**148.672** kg CO_2e

CarbonHub Demo:

Default factors, assigning factors, converting utility bills into Scope 1 and 2

Converting Scope 1 and 2 to CO_2 e 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?

Custom Factors for Power Purchase Agreement

1 lb/MWh = 0.00045359237 kg/kWh

- CO_2 =0.15290145
- NO_x = 0.00009979
- SO_2 = Not counted as a GHG

Source	PJM* System Mix	Large Commercial WGL Energy Fuel Mix	Small Commercial (3.5% PJM* Wind Included)	Residential (5% Wind PJM* Included)	50% Local PJM* Wind	100% Local PJM* Wind
Coal	21.3%	18.5%	17.7%	17.4%	7.8%	0.0%
Gas	38.7%	34.1%	32.8%	32.2%	14.8%	0.0%
Nuclear	33.0%	28.7%	27.6%	27.1%	12.2%	0.0%
Oil	0.2%	0.2%	0.2%	0.2%	0.1%	0.0%
Renewable Energy						
Captured Methane Gas	0.2%	0.2%	0.2%	0.2%	0.1%	0.0%
Geothermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Solar Voltaic	1.0%	2.9%	2.9%	2.9%	2.4%	0.0%
Solar Thermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Solid Waste	0.5%	1.4%	1.4%	1.4%	1.2%	0.0%
Hydro-electric	1.2%	2.6%	2.5%	2.5%	2.0%	0.0%
Wind	3.6%	8.3%	11.7%	13.1%	56.5%	100.0%
Wood or other Biomass	0.2%	3.1%	3.1%	3.1%	3.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Air Emissions (lbs. per MWh)						
Sulphur Dioxide (SO_2)	0.48	0.48	0.46	0.46	0.24	0.00
Nitrogen Oxides (NO_x)	0.36	0.40	0.39	0.38	0.22	0.00
Carbon Dioxide (CO_2)	827.52	750.85	721.89	709.47	337.09	0.00

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 CO_2 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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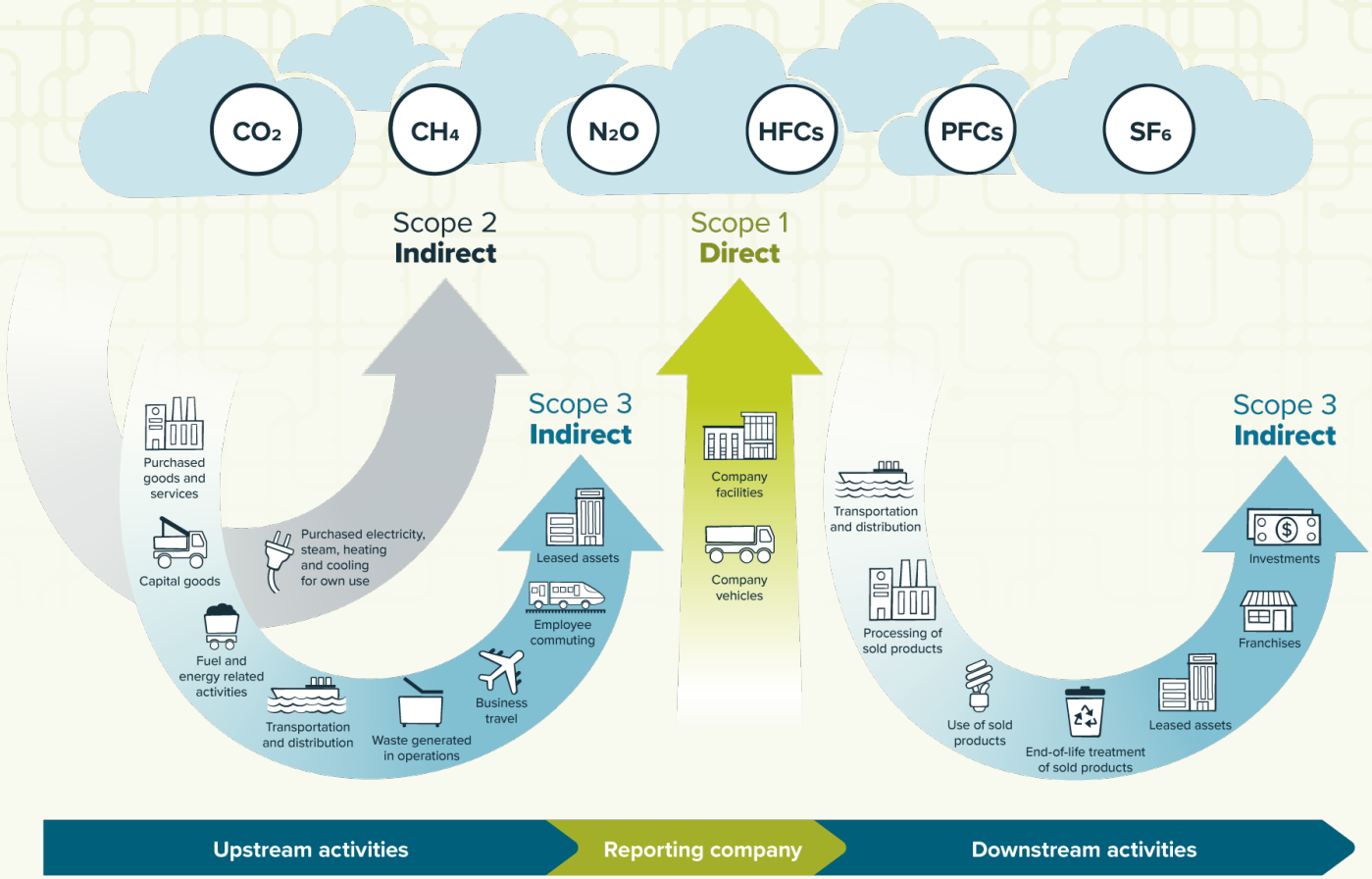
CarbonHub Demo:

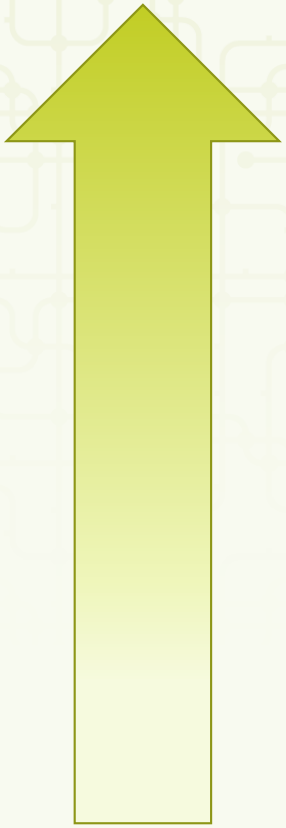
Custom factors, offsets, and Renewable Energy Credits (RECs)

GHG Scopes



Options for Scope 3 reporting

Most Detailed/Accurate



Detailed GHG values from suppliers/vendors

Actual use/purchase quantities x GHG factors

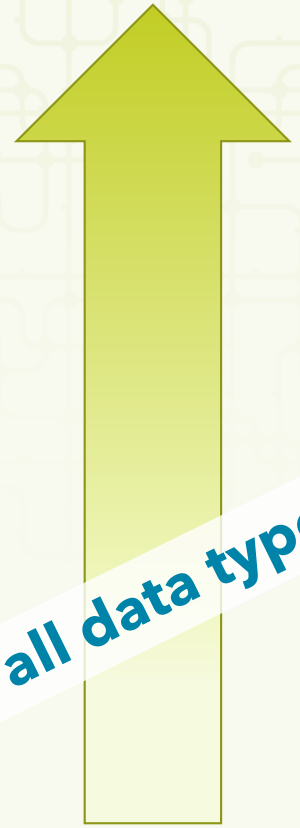
Estimated use/purchased quantities x GHG factors

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

Actual spending/cost x spend-based GHG factors

Least Detailed/Accurate

Not all data types require the same level of detail

Tracking Scope 3

Consider your impacts

- Walk through the Scope 3 categories
- Select the ones that apply

Where can you get data?

- What data is already available to you?
- What data is available within your organization?
- What data is available from suppliers/vendors?

Are you missing important data?

- Can you use expert judgement, estimates, or similar data?

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

Demo: ENC Commuting Calculations

Tracking Scope 3 when “hard” data is available

How do we convert spending to GHG Scope 3 values?

Need cost data tracked at a level where spending categories can be mapped to a single/common spending type

Work with finance and procurement teams for detailed information

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There are industry sources available – will require some work to track down and normalize

CarbonHub can help: factors available from EPA (US), Defra (UK), ecoinvent (global)

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How often do these conversion factors change?

Varies, but many are annually provided (with several years of delay)

CarbonHub takes care of updates

EnergyCAP Case Study: Spend-based analysis

Which factors will we use to map cost?

Advertising & Marketing Expense → Advertising and public relations (USEEIO # 541800)

Airfare → Air transport (USEEIO # 481000)

Lodging → Hotels and campgrounds (USEEIO # 721000)

Meals & Entertainment → All other food and drinking places (USEEIO # 722A00)

Printing Expense → Photography and photocopying equipment (USEEIO # 333316)

Hosting → Data processing and hosting (USEEIO # 518200)

Accounting Fees → Accounting, tax preparation, bookkeeping, and payroll (USEEIO # 541200)

Demo: ENC Spend-based Calculations

Tracking Scope 3 emissions based on spending/cost

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

Takeaway:

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

CarbonHub Reporting

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)

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

CarbonHub License Details

CarbonHub Details

How is GHG functionality in CarbonHub different from EnergyCAP?

Unlocks all GHG scopes/categories

Access to broad set of maintained factors – across commodities and Scope 3 categories

Advanced charts, dashboards, and reports

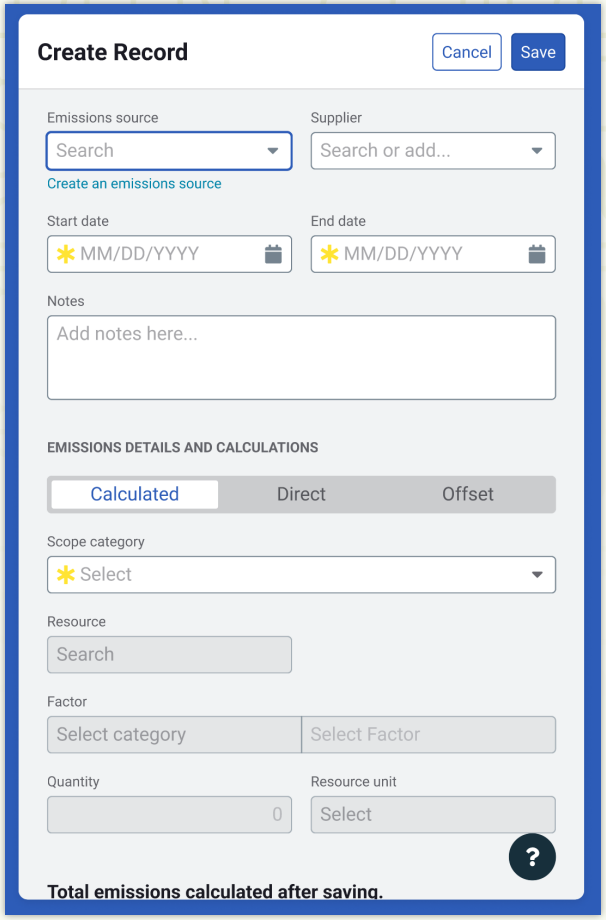
How is CarbonHub licensed?

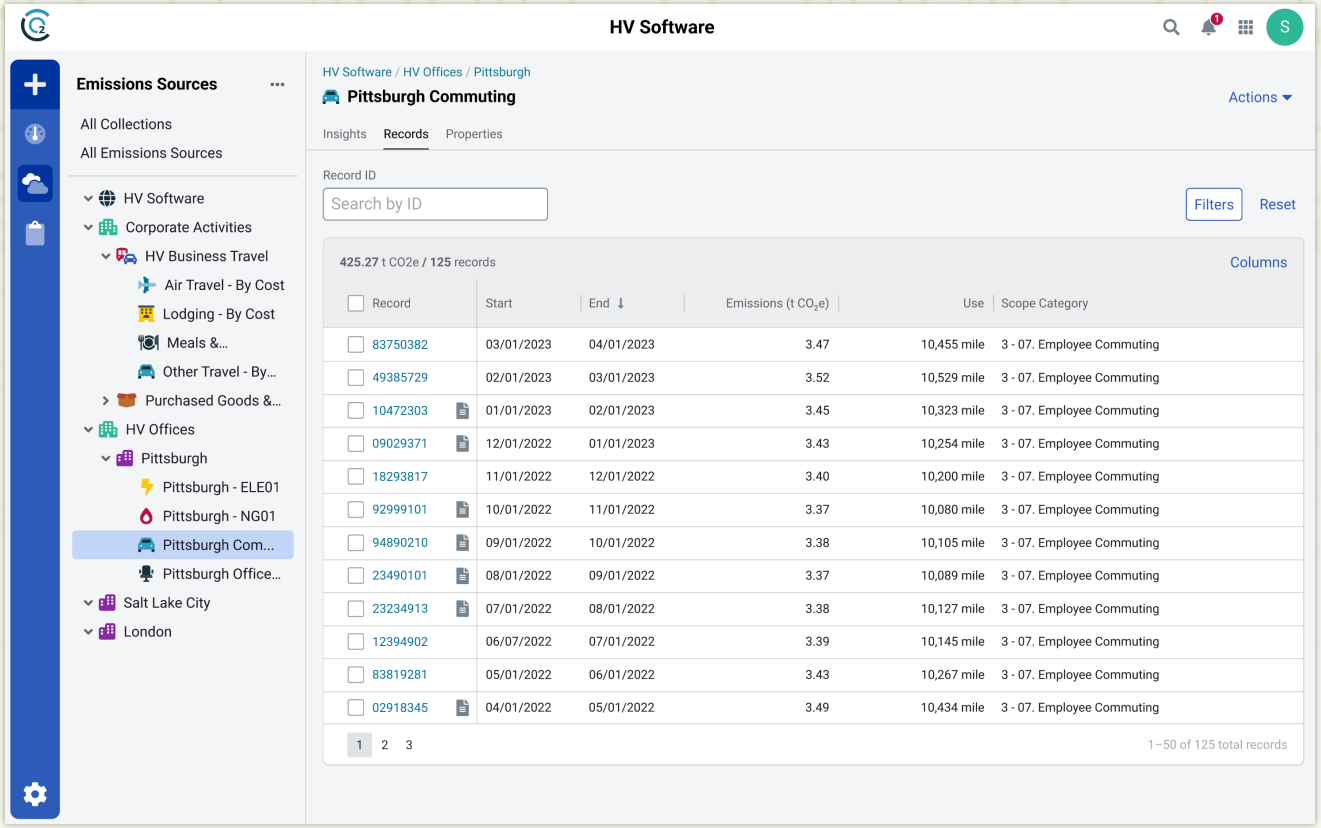
Based on number of employees in your organization

NOT meter/data point based – not limited in tracking granular/detailed data

CarbonHub Details

What's coming next for CarbonHub?





CarbonHub Details

What's coming next for CarbonHub?

New sustainability hierarchy – easier reporting and analysis

Easily create new emission sources

Simplified recording/tracking

More options for importing data and collecting data from suppliers/vendors

Additional reports and export formats

Special Opportunity: 70% CarbonHub discount for Catalyst attendees until June 30th

Questions?

