Introduction to CarbonHub, Financial Grade Carbon Accounting

CATALYSTA

Agenda

Fundamentals of Greenhouse Gases

Why is carbon accounting important?

Journey to decarbonization

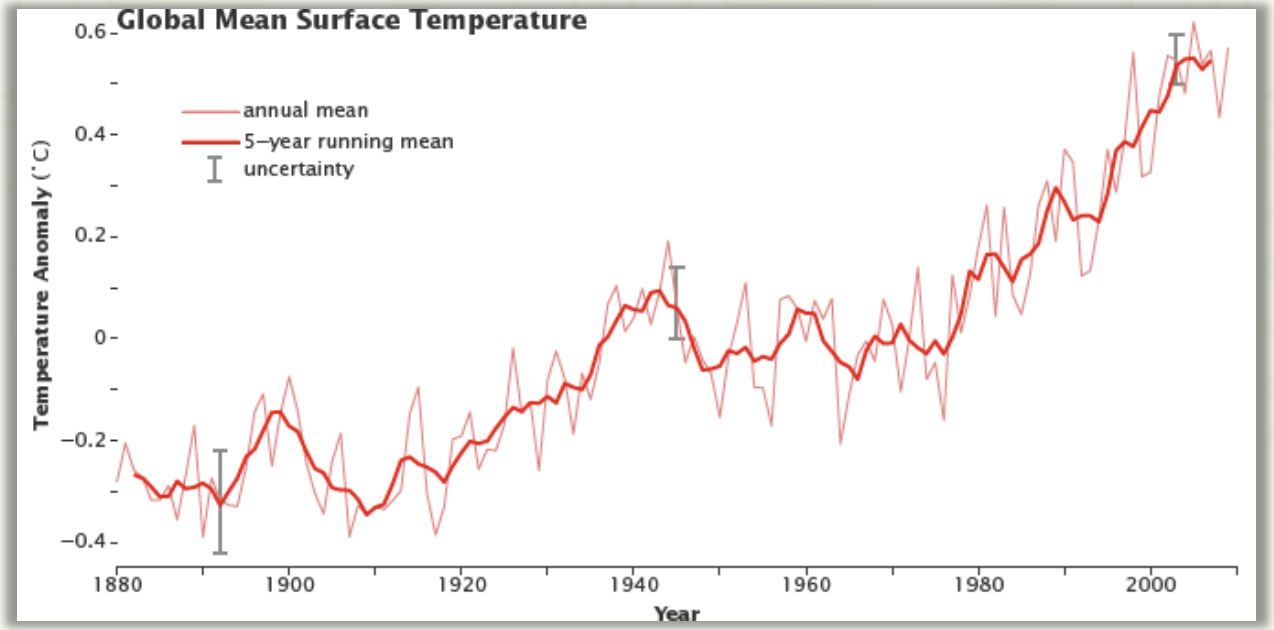
Energy & Sustainability ERP

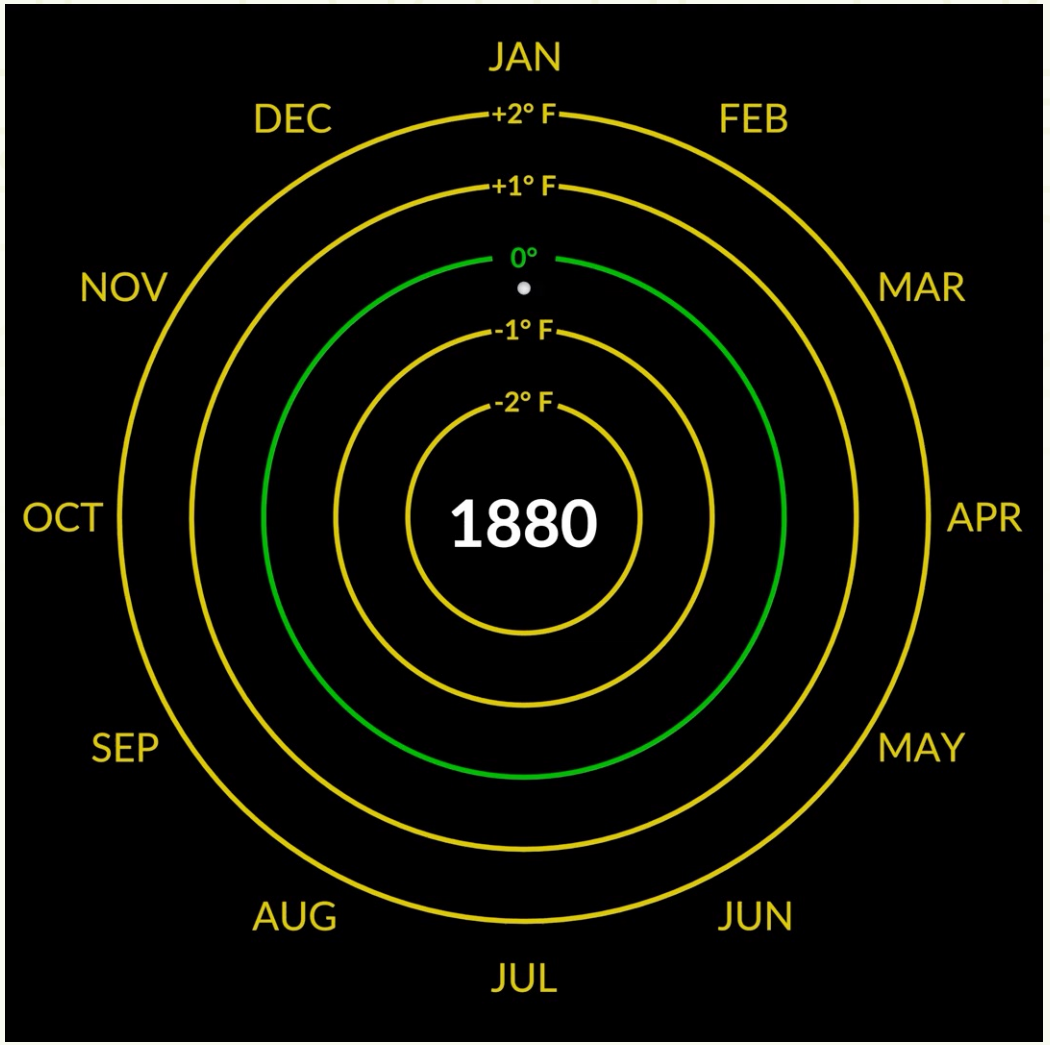
CarbonHub

Fundamentals of GHG

Greenhouse Gases

Trap some of earth's outgoing energy



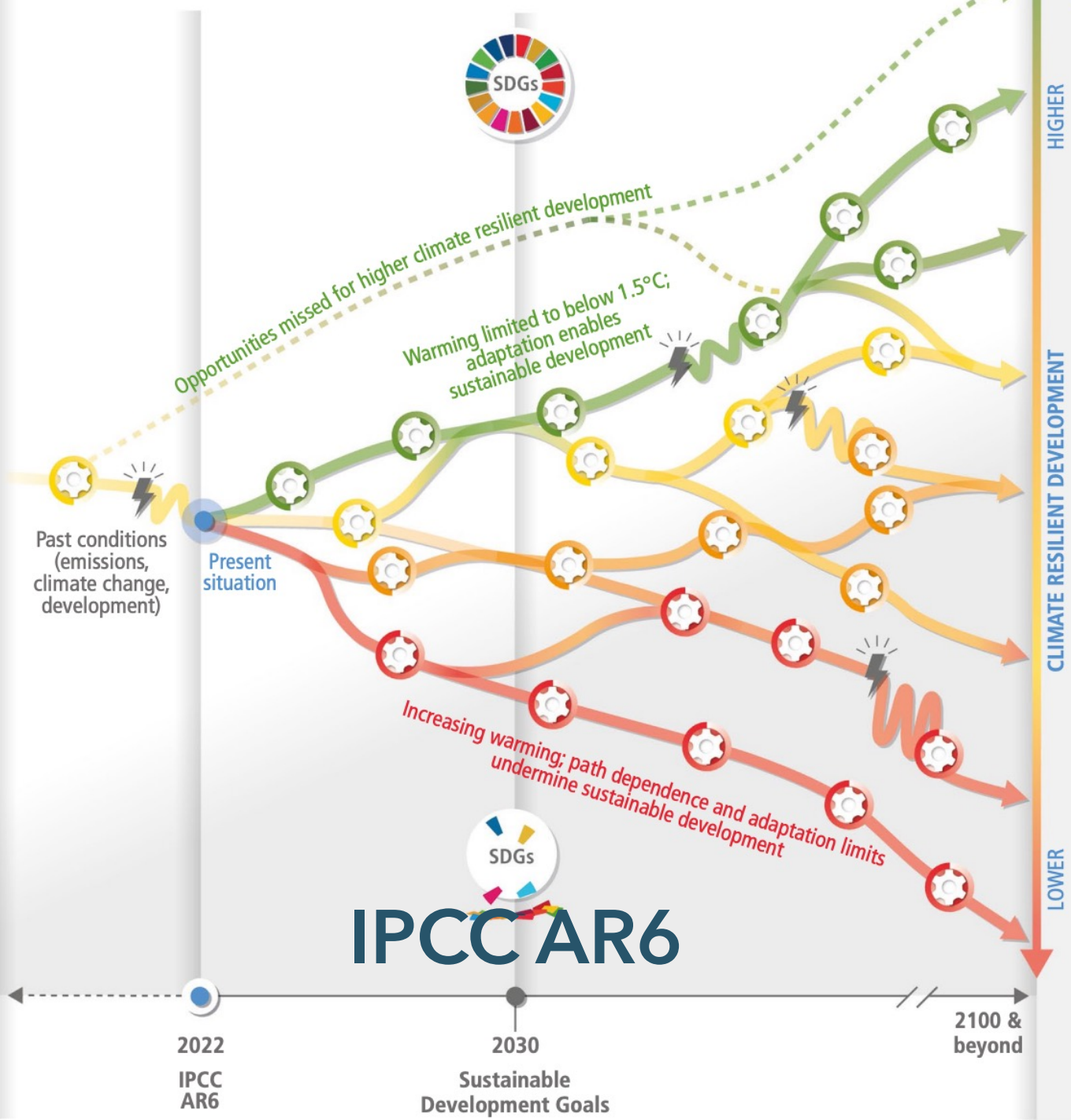


made in arenas of engagement

Dimensions that enable actions towards higher climate resilient development

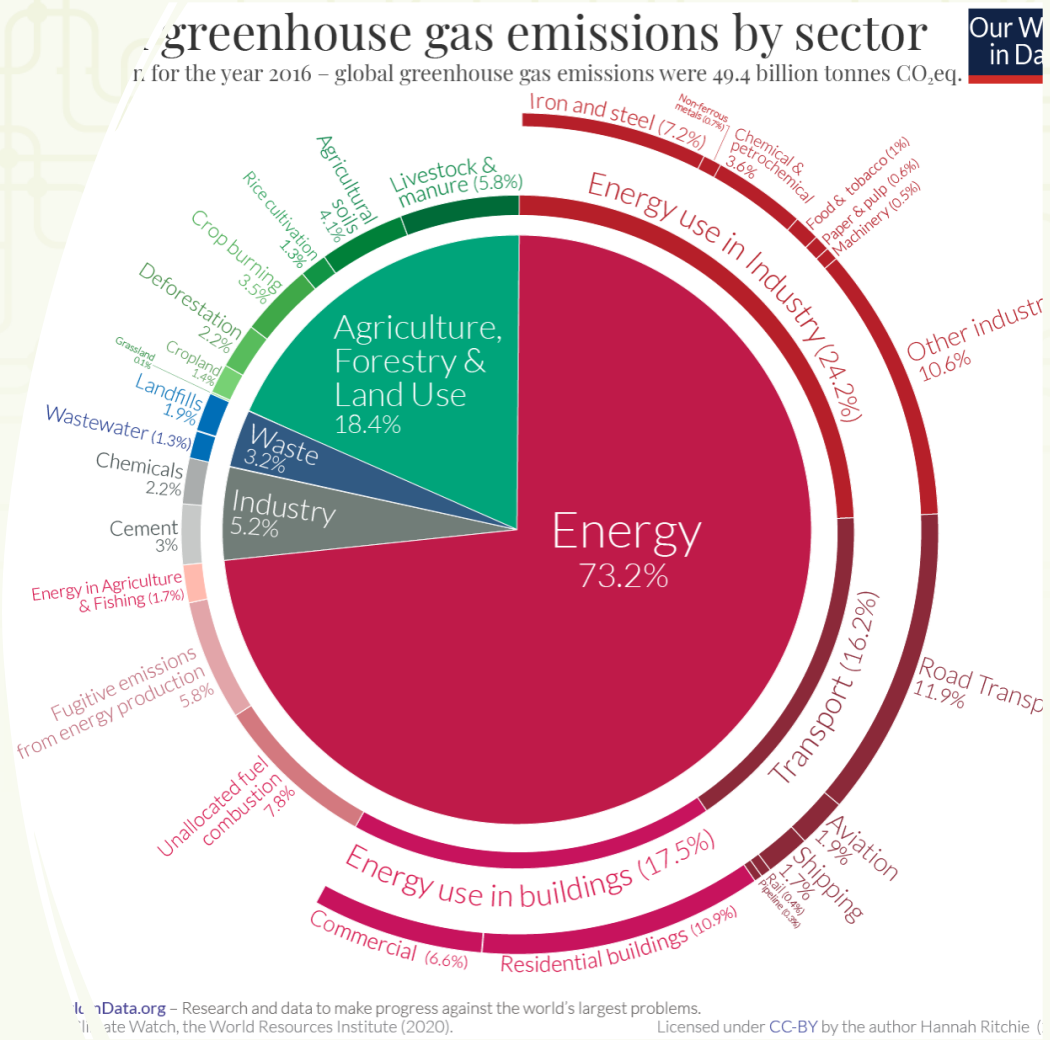
Arenas of engagement:
Community
Socio-cultural
Political
Ecological
Knowledge + technology
Economic + financial

Dimensions that result in actions towards lower climate resilient development

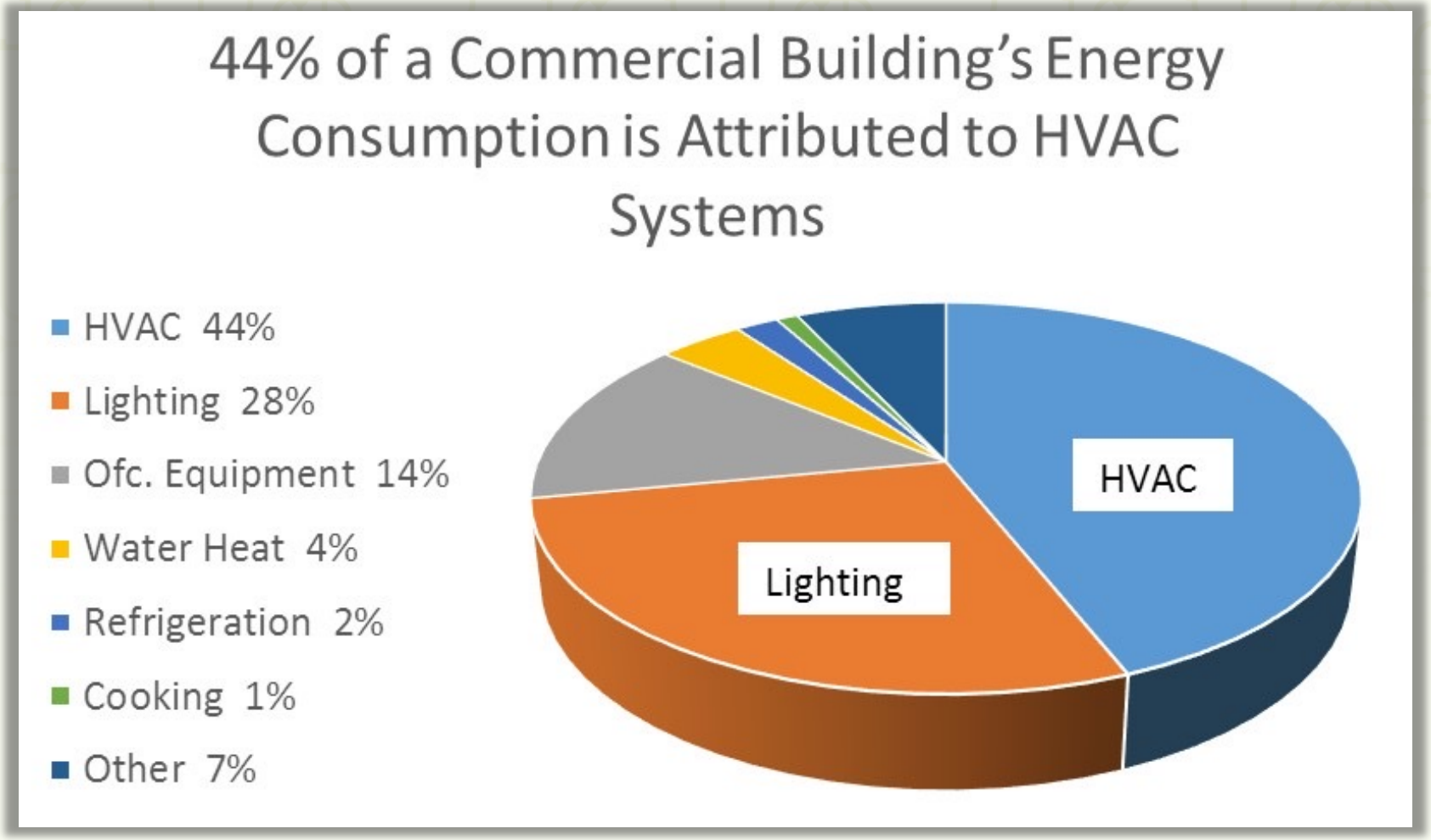


Greenhouse Gases (GHG)

- Energy needs of human activity
- Common GHGs
  - CO_2
  - N_2O
  - CH_4
- Fugitive emissions from refrigerants
- CO_2 equivalent



HVAC & Lighting Energy

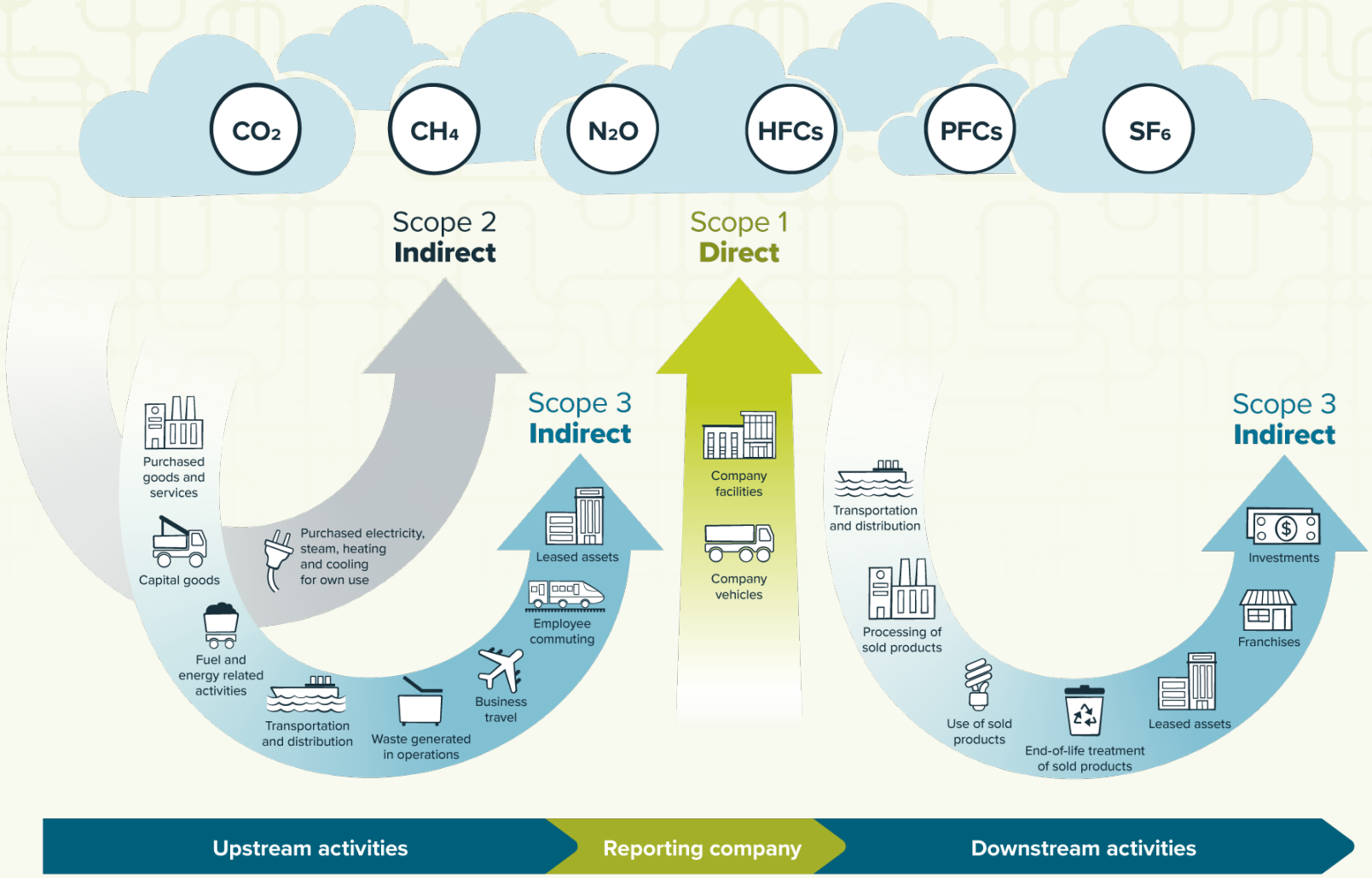


Greenhouse Gas Protocol

- 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



Test our 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 UPS/FedEx 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.

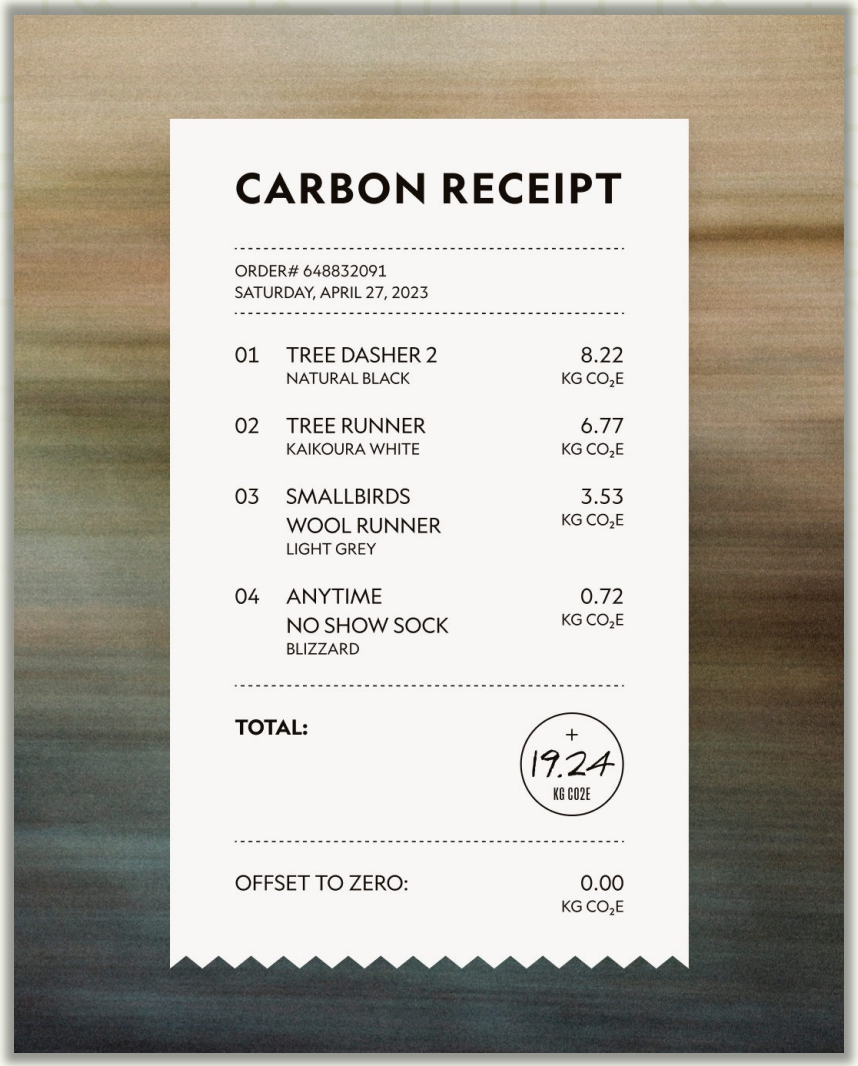
Scope 2 (Purchased Electricity)

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)
- Investor pressure
- Preferential lending terms

Carbon Receipts?



Executives are under pressure from multiple carbon accounting challenges

Urgent need to educate C-Level executives and the board on why investment in carbon accounting systems

Reputational threats from shadow-reporting providers using satellite data and media-monitoring tools

Disclosure requests from an ever-expanding universe of stakeholders

Growing need to conduct comprehensive supply chain assurance to mitigate upstream risks

Unsure how to articulate a vision for a carbon accounting system information structure

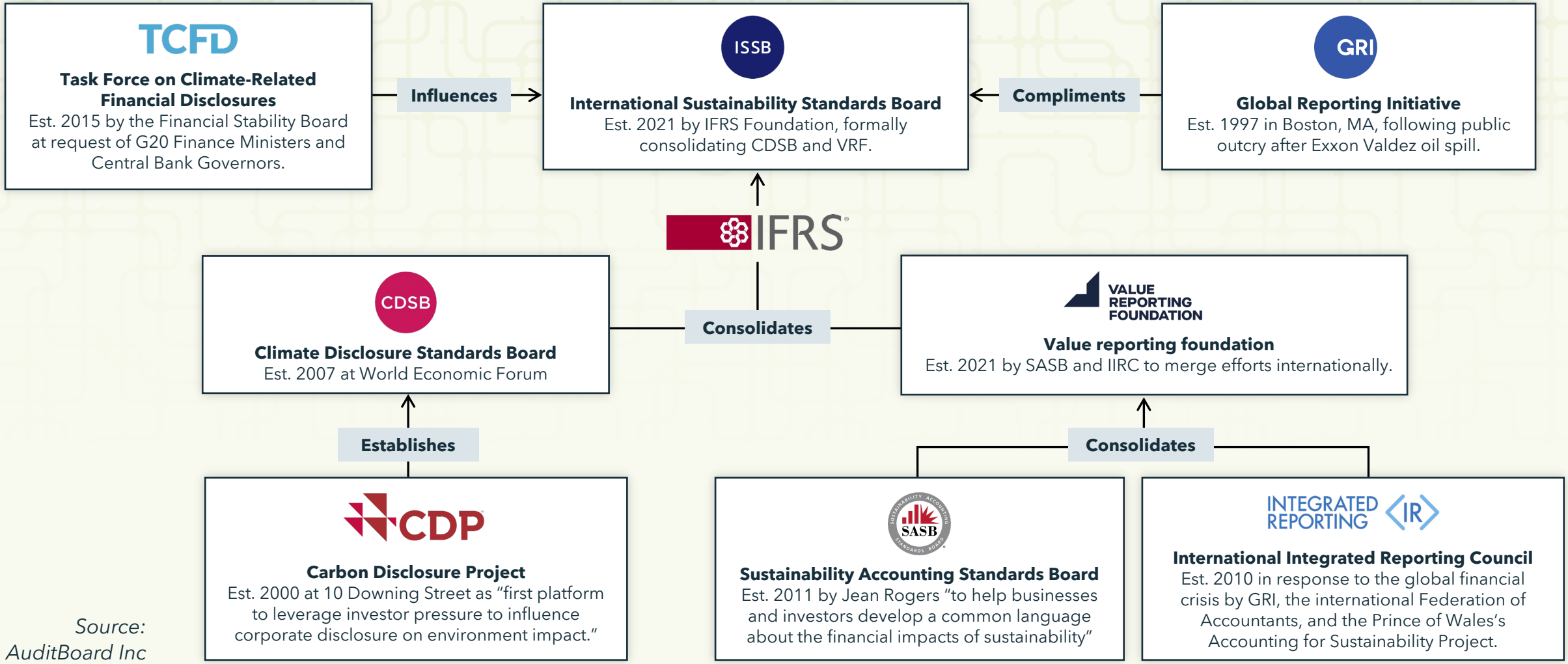
Fast-evolving regulatory environment with new mandatory disclosure requirements

Inconsistent and opaque methodologies for carbon accounting system scores and ratings

Urgent need to communicate a data-driven climate strategy

Source: Verdantix

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 disclose[1]

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.

[1]This 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

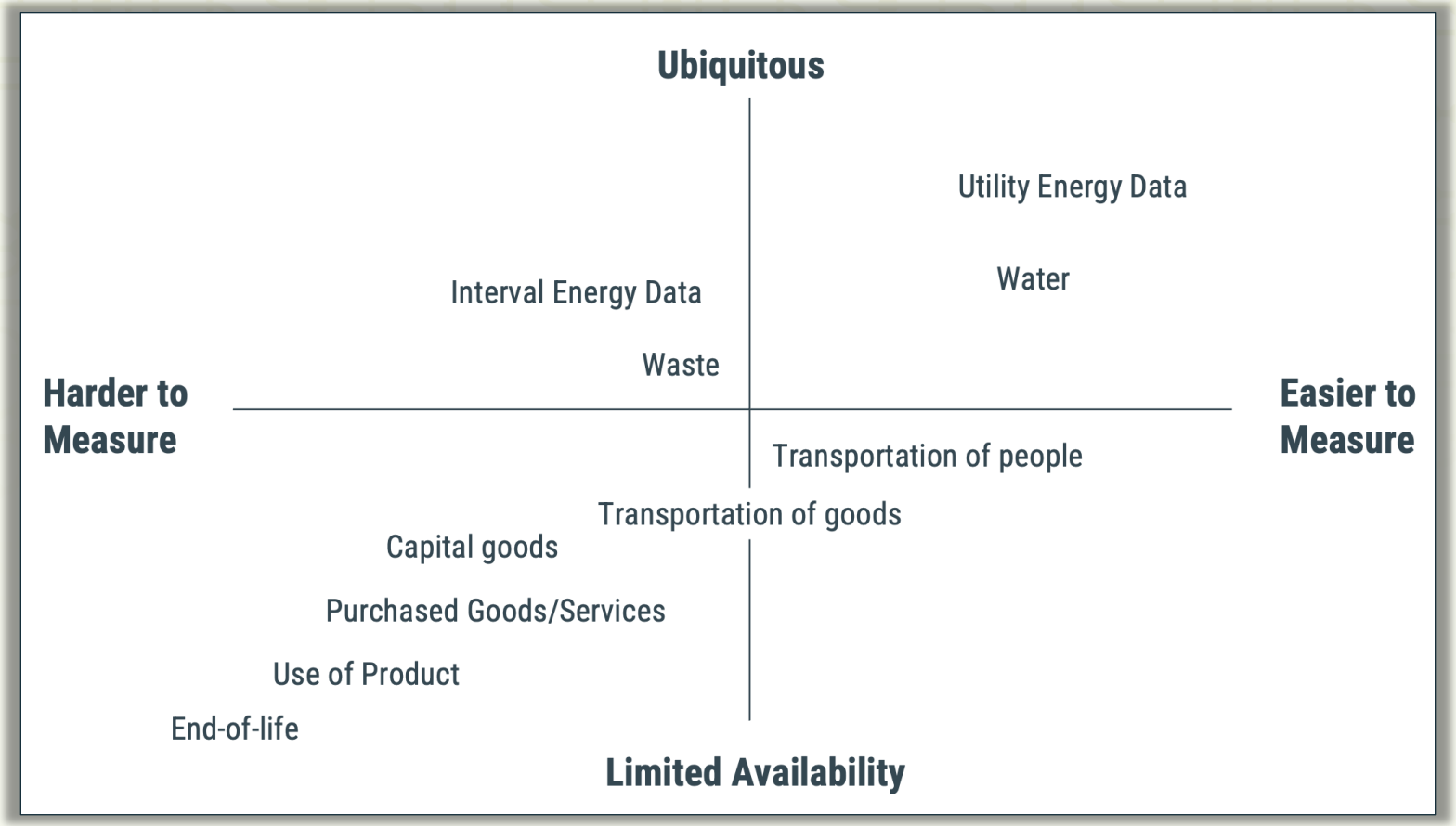
McKinsey & Company

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

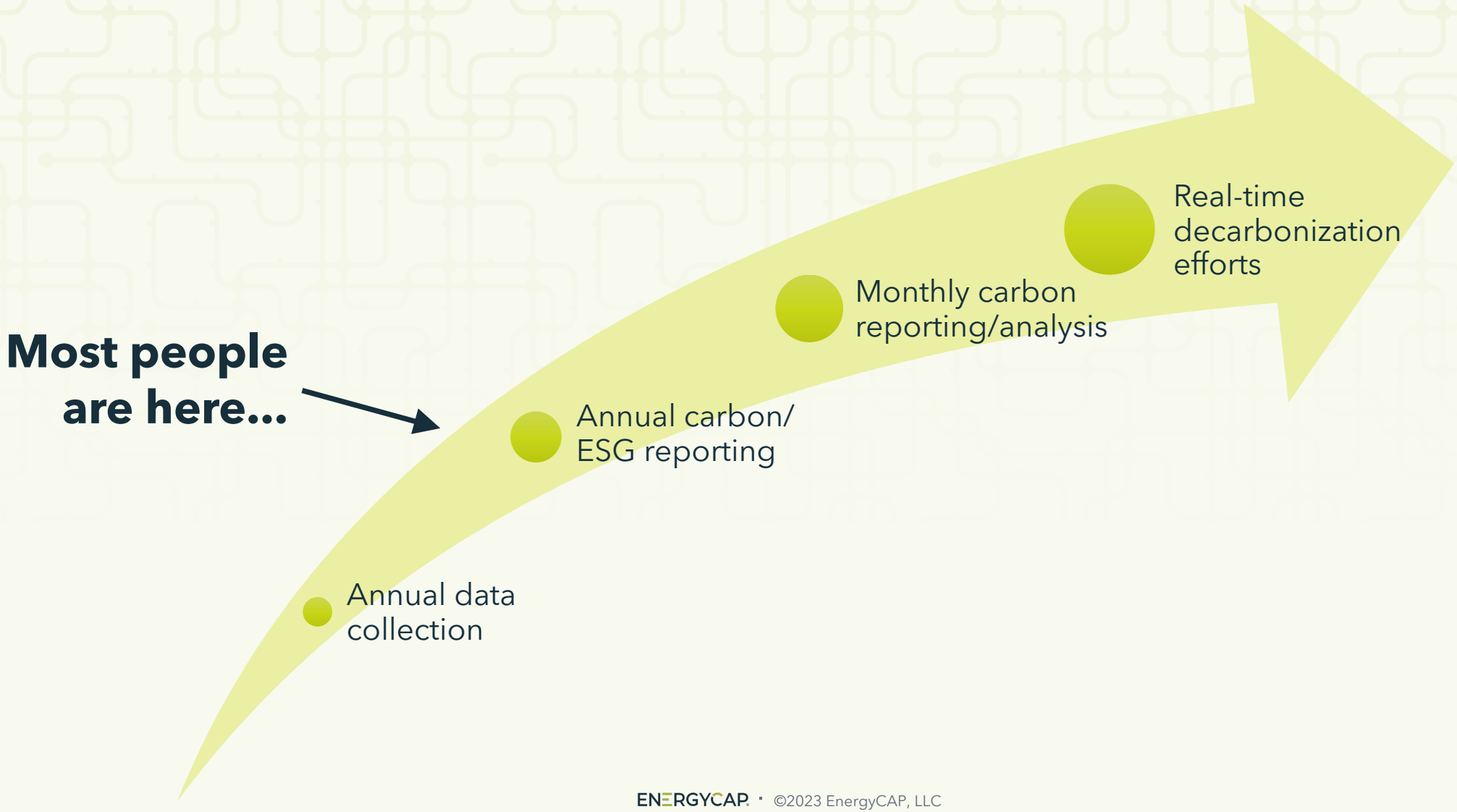
Journey to decarbonization

Getting started

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

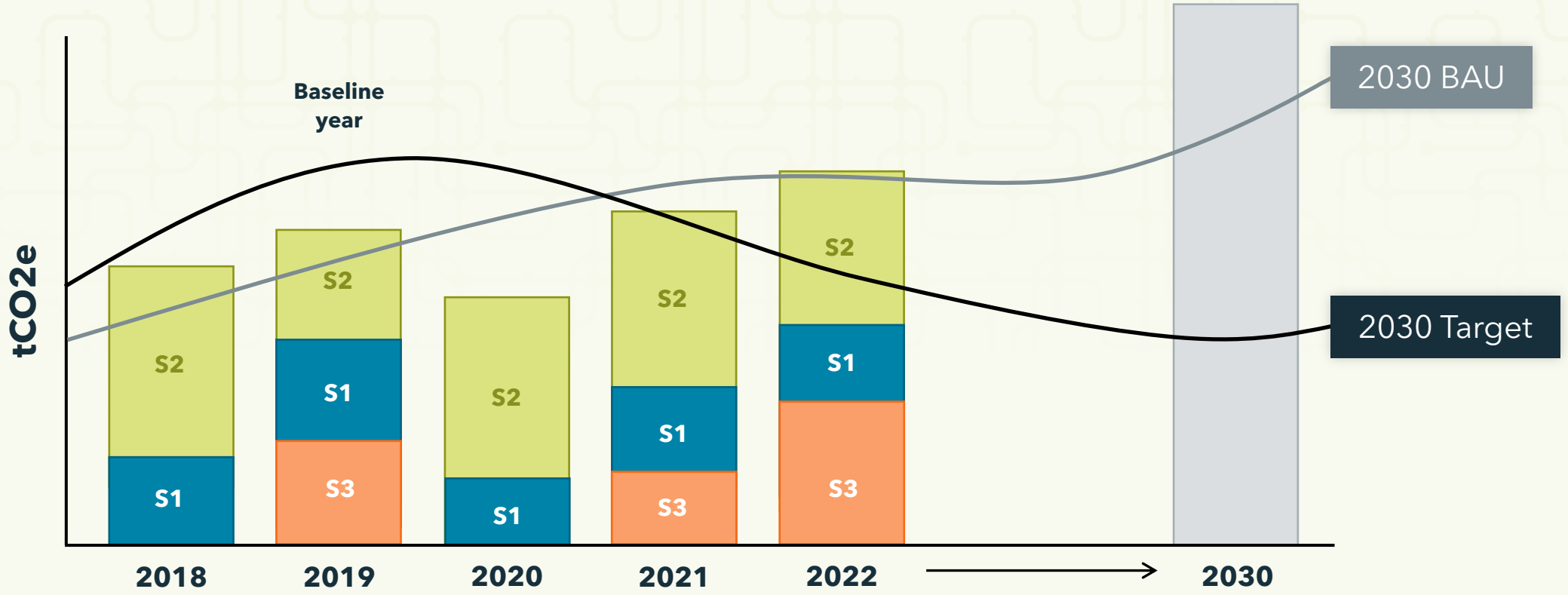


The Decarbonization Data Journey



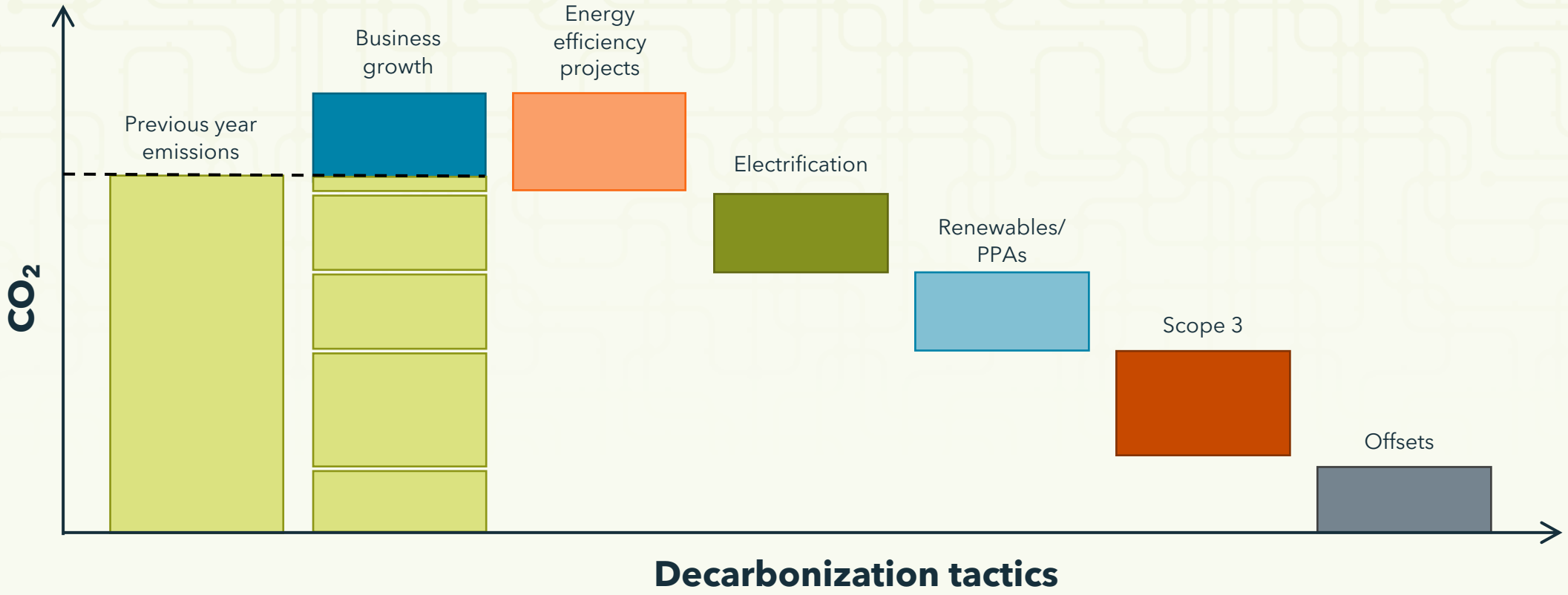
Journey to decarbonization

Once you are able to report on annual emissions and establish targets, you should assume emissions increases with business growth



Journey to decarbonization

There are a multitude of tactics to decarbonize your operations



Evolution from spreadsheets to ERP software // Carbon accounting

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

Use an energy and sustainability ERP to streamline carbon accounting

Inputs
(can be automated)

- Bills and documents
- APIs and external sources
- Meters and sensors

Energy and sustainability ERP

- Single source of truth with secure data storage
- Automated data validation and cleaning
- Per source and scope carbon accounting
- Easy to use analytics tools
- Realtime monitoring of carbon, energy, water, and waste

Outputs

- Carbon, energy, financial management and reports
- Sustainability strategy, targets and tracking
- Improved energy efficiency and cost savings
- Stakeholder and staff engagement supports

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 & 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

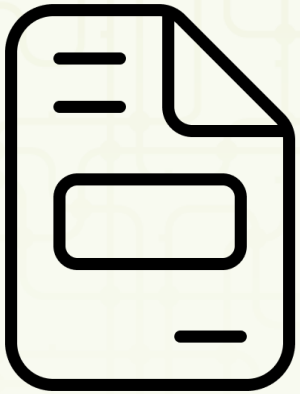
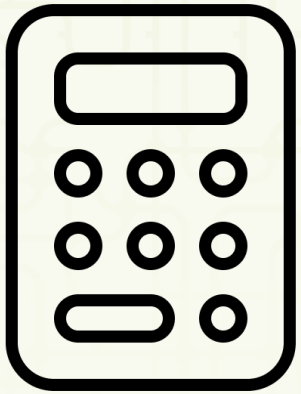
CARBONHUB®

An EnergyCAP Solution

Demo

Expanding EnergyCAP's energy and sustainability ERP capabilities

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

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

Session Survey

conferences.energycap.com/surveys