



GETTING GREEN DATA CENTER RETREAT

September 12 – 14, 2023

What you need to know: **SCOPE 3 EMISSIONS**

SEPTEMBER 13th, 2023

PRESENTED BY :

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Before we start, write down one question you'd hope to learn more about Scope 3 and Carbon Accounting

Race to Net Zero



Agenda



- Definition of Scopes
- Why is Scope 3 Important
- Engaging your Supply Chain
- Driving Toward Standardization
- Breakout Group Discussions

Before we start, write down one question you'd hope to learn more about Scope 3 and Carbon Accounting

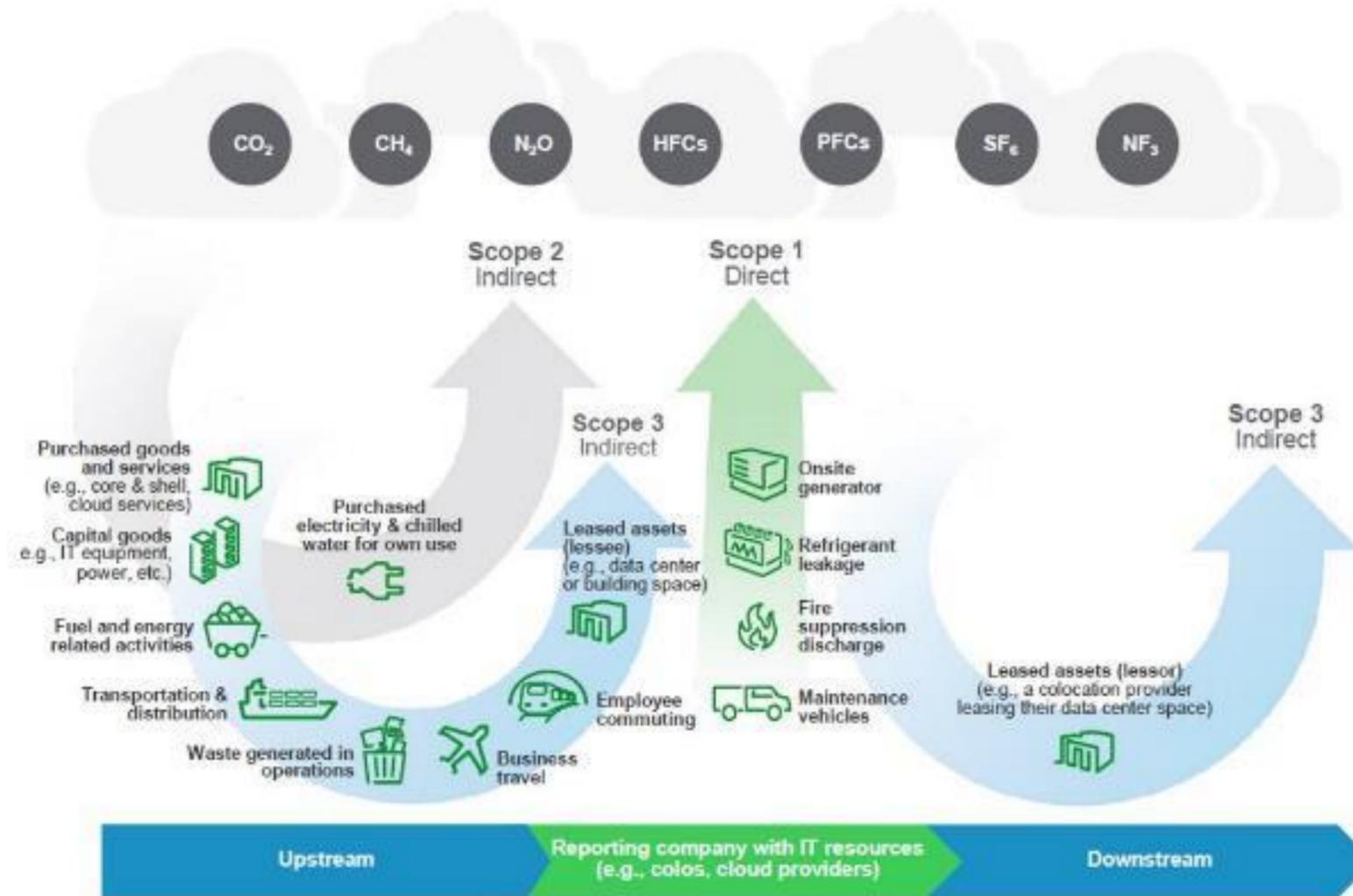


Definition of Scopes

Value Chain (Scope 3) Emissions

Upstream

- Purchased goods & services
- Capital goods
- Fuel- and energy-related activities not included in Scope 1 and Scope 2
- Upstream transportation and distribution
- Waste generated in operations
- Business travel
- Employee Commuting
- Upstream leased assets



Downstream

- Downstream transportation and distribution
- Processing of sold products
- Use of sold products
- End of life of sold products
- Downstream leased assets
- Franchises
- Investments

Embodied Carbon vs. Scope 3 Emissions



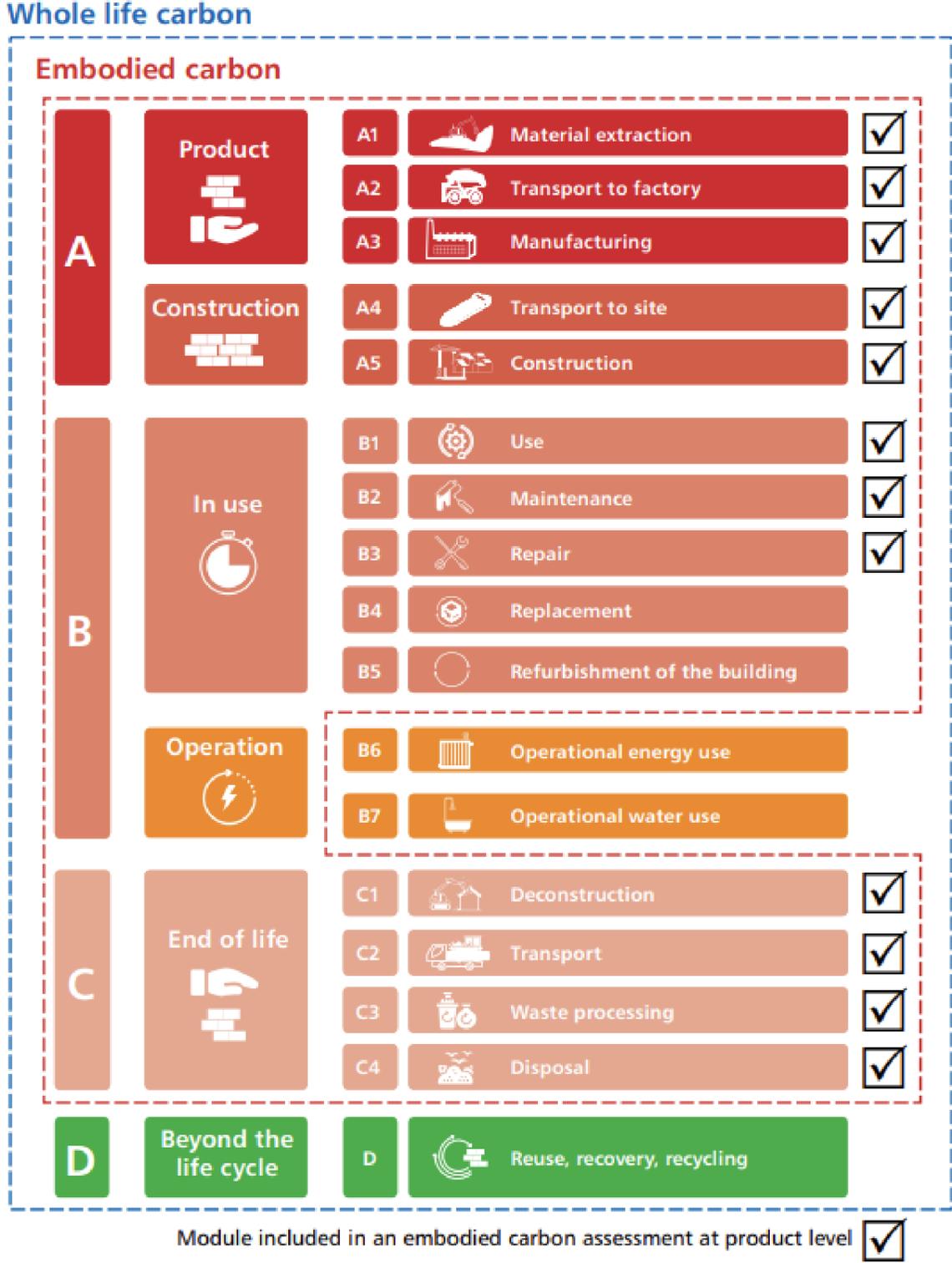
Embodied Carbon

does not include operational footprint. It refers to GHG emissions from the **manufacturing, transportation, installation, maintenance, and disposal** of building materials and equipment.

VS.

Scope 3 Emissions

highlights GHG emissions attributed to the **upstream and downstream of the value chains**, including use-phase of sold products



TM65 Embodied Carbon Calculation Methodology

Science Based Target Initiative (SBTi) Net Zero Standard

Reflecting the need to coalesce around a standard definition of Net Zero



SBTi Net Zero Standard

Carbon Neutral

Allows for purchase of **carbon offsets** equivalent to the emissions released, to effectively zero out the emissions balance.

VS.

Net Zero

Reducing emissions at a pace that is in line with latest climate science and balancing remaining residual emissions through **carbon removal credits**.

- **Offsets:** tradable “rights” or certificates linked to activities that lower the amount of carbon dioxide (CO₂) in the atmosphere. In this way, the certificates “offset” the buyer’s CO₂ emissions with an equal amount of CO₂ reductions or removals somewhere else.
- **Removals:** Carbon removal is the act of taking carbon dioxide out of the atmosphere and storing it permanently and sustainably.
- **Residual emissions:** are the hard-to-abate emissions that cannot be reduced, and need to be offset (either by reduction or removal credits)

Why Scope 3 is Important

Regulations on ESG & Scope 3 Reporting

	Framework	Timeline	Scope 3 Clauses
	<p>EU law for sustainability reporting by large companies and listed SMEs.</p> <p>Follows European Sustainability Reporting Standards (ESRS)</p> <p>Aligns closely with GRI and ISSB standards</p>	<p>FY 2024 reports required by 2025</p> <p>Will apply to all in-scope companies by January 1, 2028</p>	<p>Must disclose a company's gross Scope 1, 2 and 3 greenhouse gas emissions;</p> <p>Not only disclose on climate, but also water/marine resources, circular economy, pollution and biodiversity</p>
	<p>Developed global IFRS S1 & S2 standards for sustainability disclosures in capital markets</p> <p>Integrated SASB, TCFD, CDSB, and GRI</p>	<p>Issued in June 2023 and will be effective for annual periods beginning on or after January 1, 2024</p>	<p>IFRS S2 specifies to disclose entity's absolute gross greenhouse gas emissions generated during the reporting period for Scope 1, 2, and 3</p>
	<p>Voluntary recommendations broken down by governance, strategy, risk management, and metrics and targets</p> <p>Limited only to climate and are not required to follow CSRD's "double materiality" standard</p>	<p>Issued in June 2017 and are expected to be widely adopted by 2023</p> <p>Required for all UK premium-listed and 1,300 of the largest UK-registered companies and financial institutions</p>	<p>The disclosure of Scope 3 GHG emissions is subject to materiality; however, the Task Force encourages organizations to disclose such emissions</p>
	<p>SEC proposed rules to require disclosure only of climate-related information, rather than the CSRD's broader focus on other ESG factors</p> <p>The SEC's proposed attestation requirement is also more limited in scope than the CSRD's</p>	<p>Proposed in March 2022 and close to releasing its final rules</p> <p>U.S.-listed companies may have to comply as early as 2025</p>	<p>Required to disclose Scope 3 if material, or if the registrant has set a GHG emissions target or goal that includes Scope 3 emissions</p>

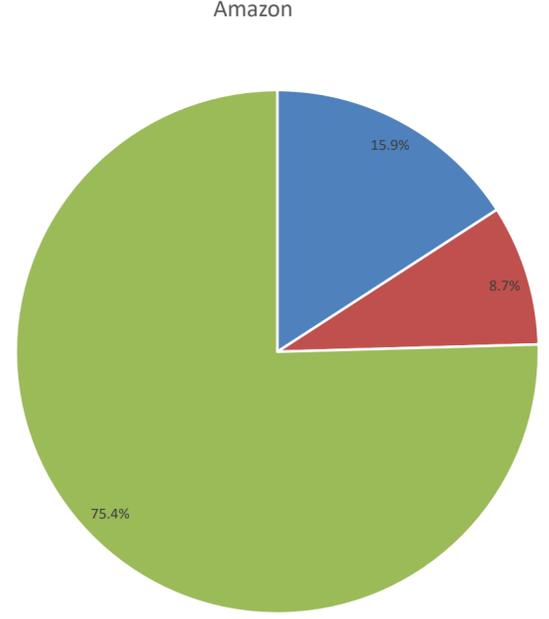
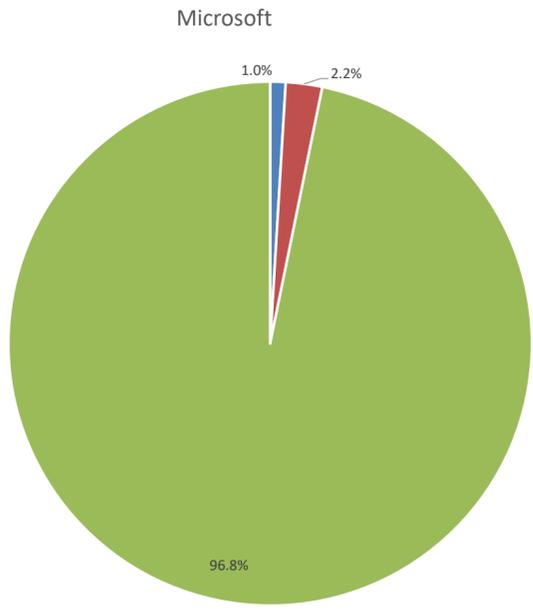
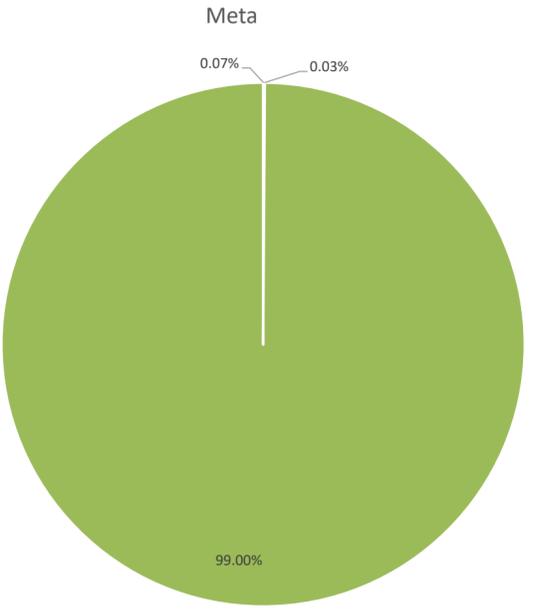
Industry Standards Driving Scope 3 Action

	Structure	Validation	Participants
 <p>SCIENCE BASED TARGETS <small>DRIVING AMBITIOUS CORPORATE CLIMATE ACTION</small></p>	<p>Pledge to: By 2030 – halve emissions By 2050 – Net Zero value chain</p>	<p>Official process in place</p>	<p>Open to all industries globally</p>
	<p>Emissions disclosures Water impact disclosures Supplier engagement</p>	<p>Official process in place</p>	<p>Open to all industries globally</p>
	<p>Low PUE 100% RE by 2030 IT reuse/repair targets Design for heat reuse</p>	<p>Must be certified by independent auditor</p>	<p>EU cloud infrastructure and data centers</p>
	<p>Reporting Carbon Elimination Credible Offsets -> Net Zero by 2040</p>	<p>Regular reporting</p>	<p>Amazon founded – 429 signatories</p>
	<p>Under development, but will include a maturity model for carbon associated with materials, equipment, and power.</p>	<p>Under development</p>	<p>Cloud infrastructure and data centers globally</p>

Upstream Scope 3 is the next frontier of decarbonization in the data center industry



■ Scope 1 ■ Scope 2 ■ Scope 3




99% Scope 3
of which
92% upstream



97% Scope 3
of which
60% upstream



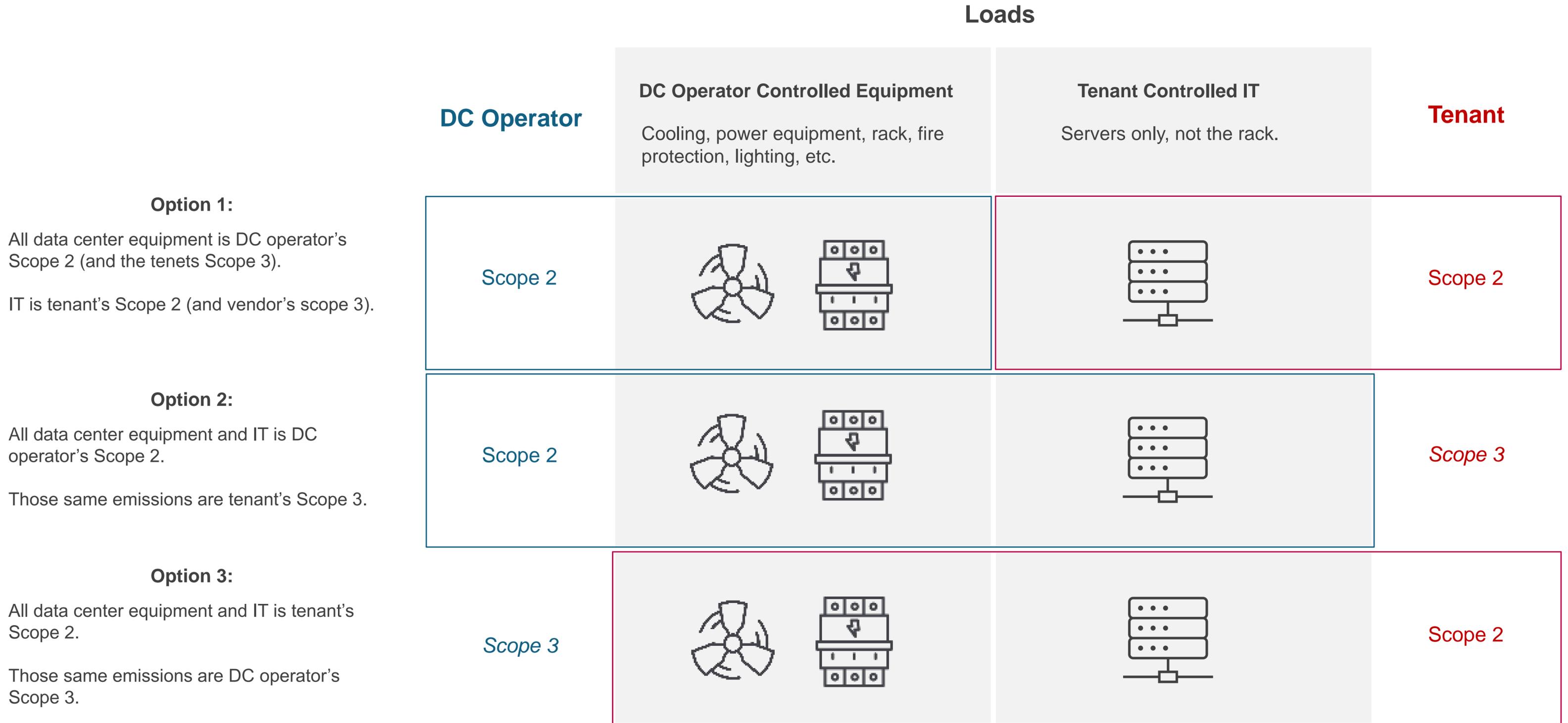
76% Scope 3
of which
70% upstream

Public Commitment : Net-zero emissions by 2030 across full value chain

Public Commitment : Carbon-negative by 2030, including full value chain

Public Commitment : Net-zero carbon across all businesses by 2040

Colo Data Center: Allocating Emissions from Purchased Power





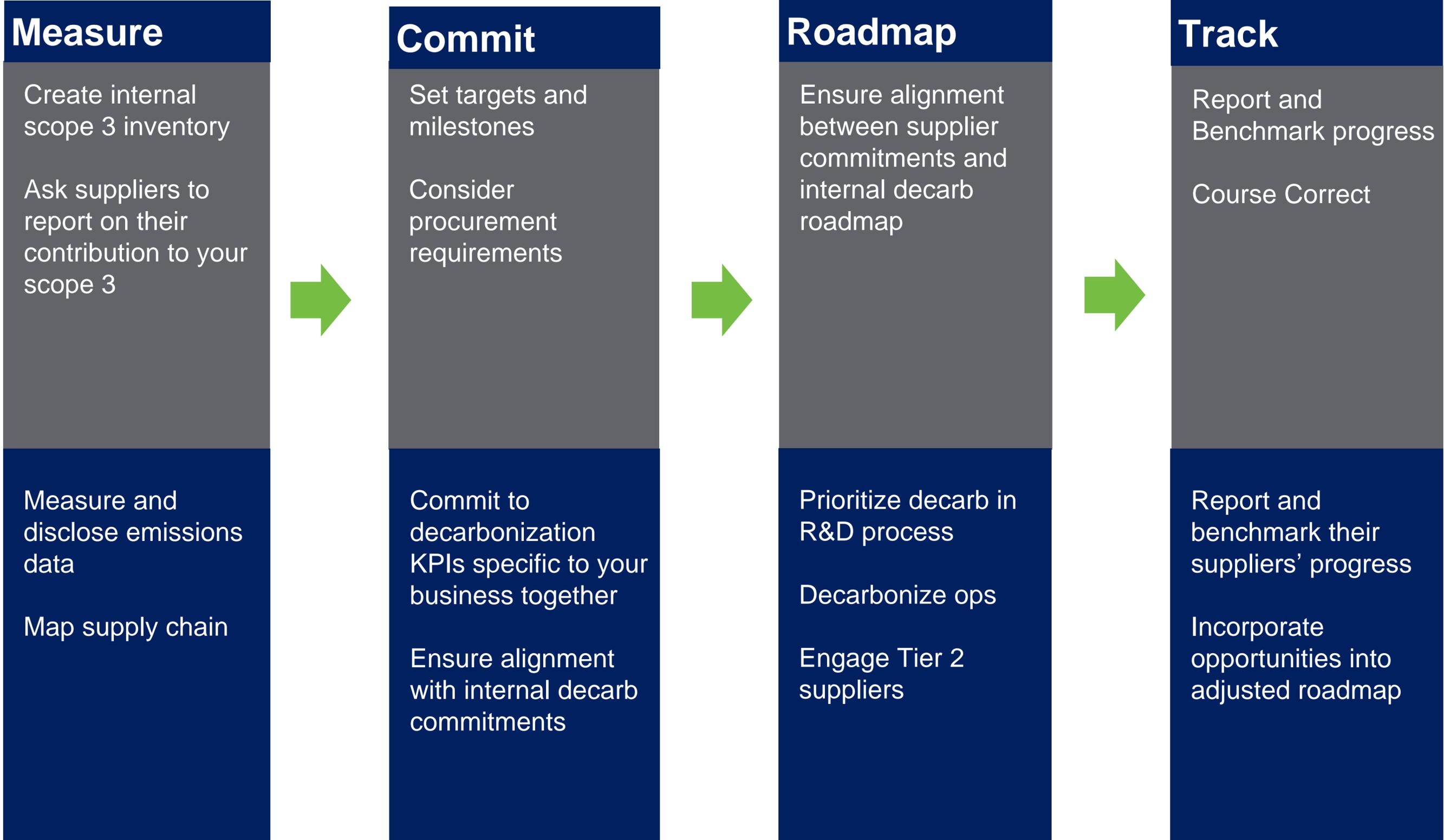
Engaging your supply chain

Engaging Your Supply Chain

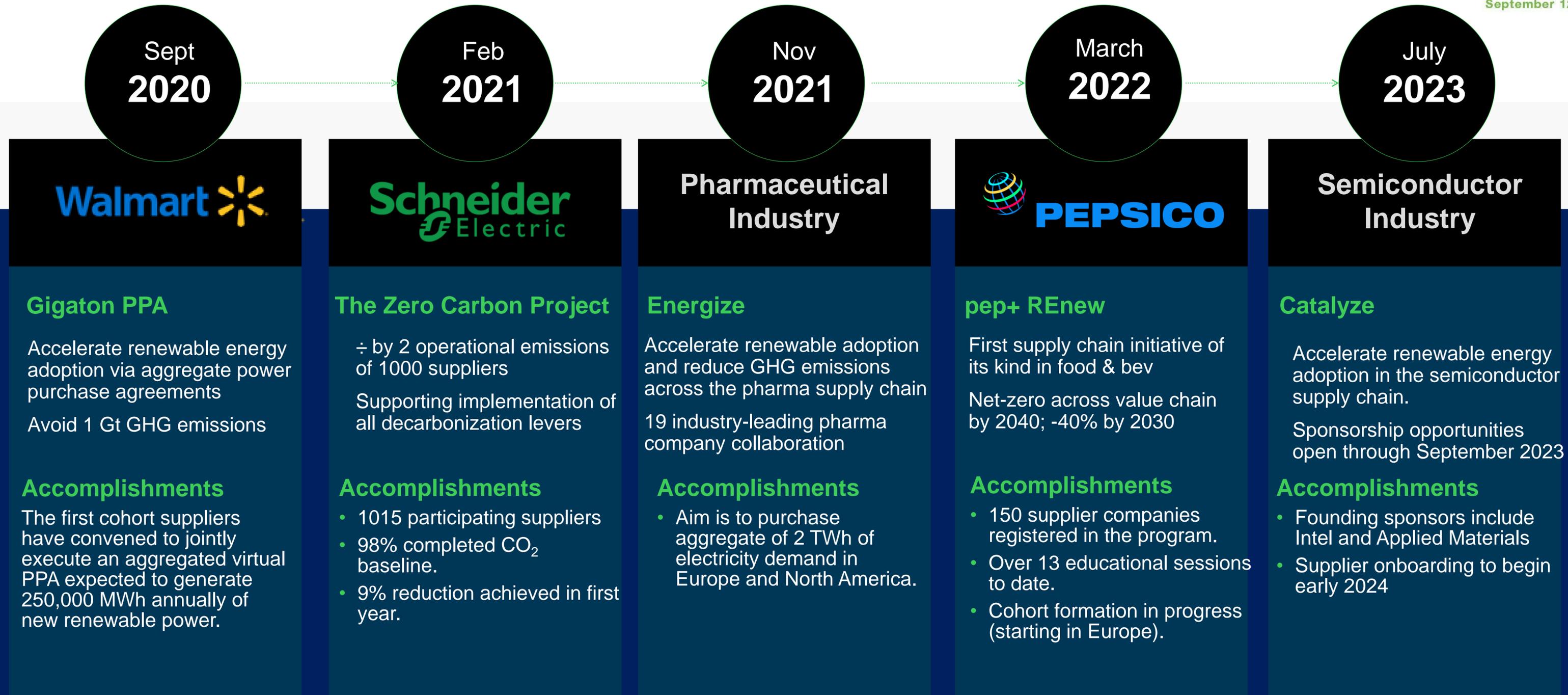


Engagement

Supplier Responsibilities



Schneider supply chain decarbonization programs



Schneider Example: Decarbonizing our Supply Chain



Scope 3 upstream: engaging with our suppliers

Zero Carbon Project

Leadership & support to accelerate climate action within our ecosystem

ANALYTICS

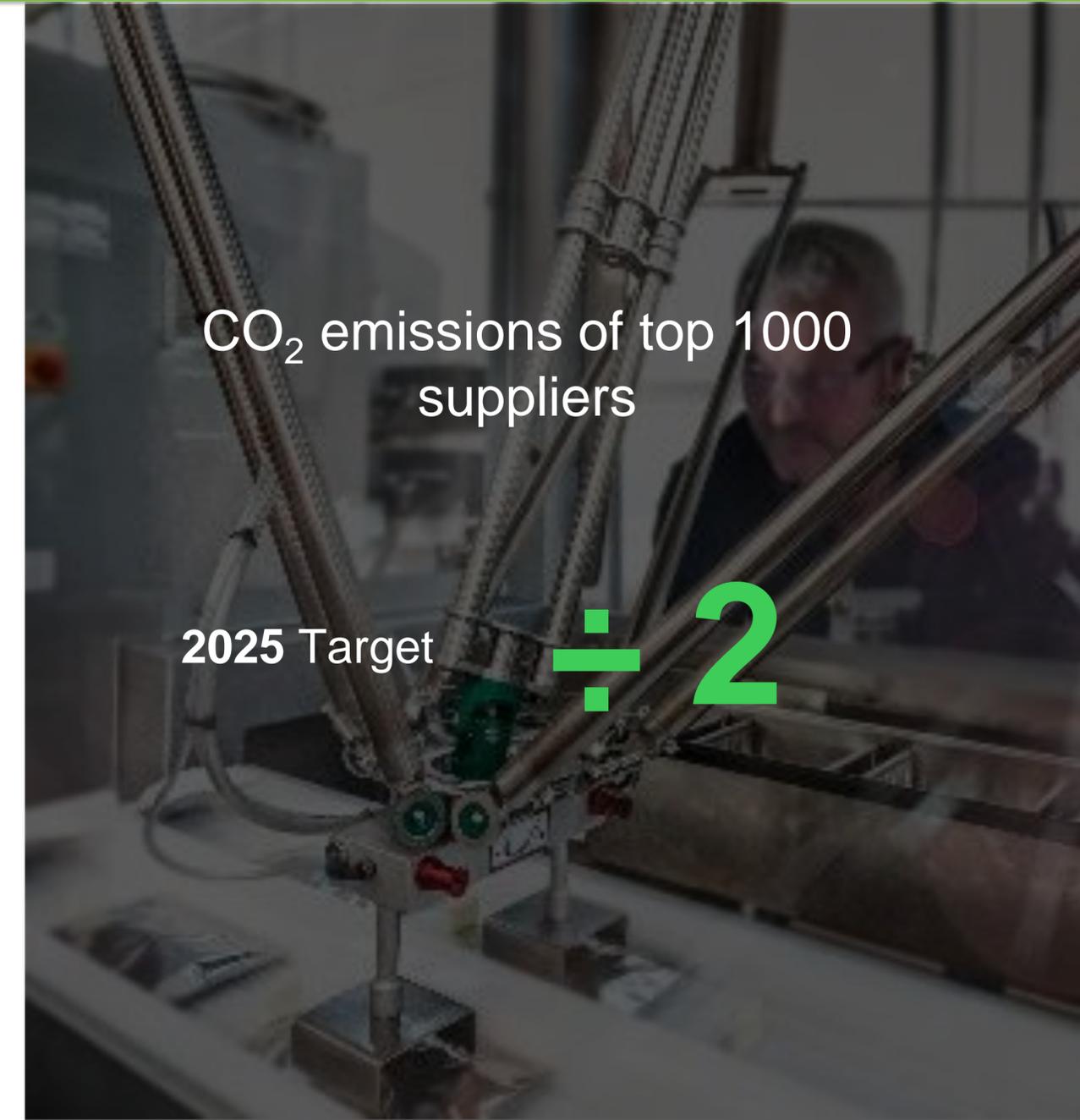
Quantify and Measure GHG emissions with digital tools

AMBITION

Set **Strategy and Goals** to accelerate progress toward climate action ambition

ACTION

Reduce emissions through decarbonization initiatives and **exchange** with peers & partners, access innovative solutions





Driving Toward Standardization

How to drive down Scope 3 from purchased goods? **Good data is required.**



Setting reduction goals for vendors



Tabulating impact of entire DC design



Making purchasing decisions

Example EPD:

Schneider's Product Environmental Profiles



- Type III Environmental Product Disclosure in compliance with the ISO 14025 standard
- Prepared and published according to PEP ecopassport framework – an independent third-party organization.
- Development process and PEP documents are independently reviewed and verified
- Includes:
 - Constituent materials
 - Substance assessment
 - Environmental impact indicators

SCHN-00185-V01.01-EN - PEP ECOPASSPORT® - Uninterruptible Power Supply: Galaxy VM

Product Environmental Profile

Uninterruptible Power Supply: Galaxy VM

The UPS provides emergency power to a load when the input power source or main power fails



ENVPEP1701005_V1 - SCHN-00185-V01.01-EN

SCHN-00185-V01.01-EN - PEP ECOPASSPORT® - Uninterruptible Power Supply: Galaxy VM

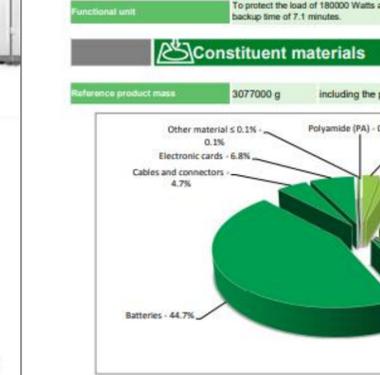
General information

Representative product Uninterruptible Power Supply: Galaxy VM - GVMSB200KHS

Description of the product The Galaxy VM is a highly efficient 160 - 1125kVA, 480V and 160 - 1000kVA 400V 3 phase Uninterruptible Power Supply (UPS) system composed of modular UPS units of various size, battery cabinets, and unit connection accessories that provide seamless power protection for medium sized data centers, industrial and facilities applications.

Description of the range The UPS provides emergency power to a load when the input power source or main power fails. The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.

Functional unit To protect the load of 180000 Watts against backup time of 7.1 minutes.



Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS (2011) and do not contain, or only contain in the authorised proportions, lead, mercury (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Annex of the RoHS Directive.

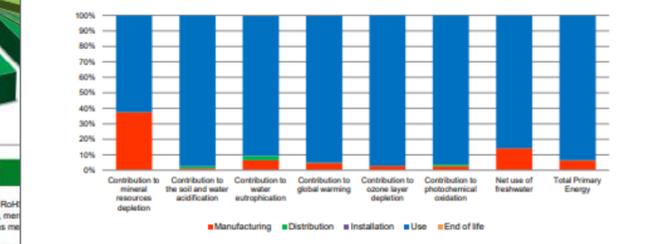
The battery pack(s) within this product range are designed to conform with the requirements of the IATA/CAO Vibration and Pressure Differential Test and that at a temperature of 55°C from a ruptured or cracked case.

As the products of the range are designed in accordance with the RoHS Directive (they can be incorporated without any restriction in an assembly or an installation see details of RoHS and REACH substances information are available on the Schneider website: <http://www2.schneider-electric.com/usa/corporate/en/products-services/green.asp>

ENVPEP1701005_V1 - SCHN-00185-V01.01-EN

SCHN-00185-V01.01-EN - PEP ECOPASSPORT® - Uninterruptible Power Supply: Galaxy VM

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to the soil and water acidification	kg SO ₂ eq	2.14E+03	2.74E+01	2.73E+01	5.69E-01	2.08E+03	1.03E+00
Contribution to water eutrophication	kg PO ₄ ³⁻ eq	9.61E+01	6.11E+00	2.75E+00	1.36E-01	8.69E+01	2.69E-01
Contribution to global warming	kg CO ₂ eq	3.19E+05	1.45E+04	1.04E+03	1.88E+02	2.99E+05	6.51E+02
Contribution to ozone layer depletion	kg CFC11 eq	7.19E-02	2.09E-03	0 ⁰	0 ⁰	6.99E-02	0 ⁰
Contribution to photochemical oxidation	kg C ₂ H ₄ eq	1.08E+02	2.83E+00	1.36E+00	4.34E-02	1.04E+02	7.73E-02
Net use of freshwater	m ³	1.01E+03	1.44E+02	0 ⁰	3.21E-01	8.66E+02	8.06E-01
Total Primary Energy	MJ	5.49E+06	3.36E+05	1.27E+04	4.26E+03	5.13E+06	3.26E+03



Optional indicators

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	3.48E+06	2.03E+05	1.33E+04	4.22E+03	3.24E+06	3.29E+03
Contribution to air pollution	m ³	2.82E+07	5.64E+06	1.34E+05	9.47E+03	2.24E+07	1.33E+04
Contribution to water pollution	m ³	2.27E+07	3.32E+06	1.56E+05	1.66E+04	1.99E+07	1.87E+05
Use of secondary material	kg	4.12E+02	4.06E+02	0 ⁰	4.60E-01	5.32E+00	0 ⁰
Total use of renewable primary energy resources	MJ	3.99E+05	5.66E+03	0 ⁰	2.17E+02	3.93E+05	0 ⁰
Total use of non-renewable primary energy resources	MJ	5.09E+06	3.34E+05	1.27E+04	4.09E+03	4.74E+06	3.29E+03
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	3.98E+05	2.25E+03	0 ⁰	0 ⁰	3.93E+05	0 ⁰
Use of renewable primary energy resources used as raw material	MJ	3.48E+03	3.27E+03	0 ⁰	1.96E+02	0 ⁰	0 ⁰
Use of non-renewable primary energy excluding non-renewable primary energy used as raw material	MJ	5.06E+06	3.22E+05	1.27E+04	2.28E+03	4.72E+06	3.29E+03
Use of non-renewable primary energy resources used as raw material	MJ	2.91E+04	1.20E+04	0 ⁰	1.77E+03	1.53E+04	0 ⁰
Use of non-renewable secondary fuels	MJ	0.00E+00	0 ⁰				
Use of renewable secondary fuels	MJ	0.00E+00	0 ⁰				
Hazardous waste disposed	kg	1.35E+04	8.72E+03	0 ⁰	0 ⁰	4.41E+03	3.43E+02
Non hazardous waste disposed	kg	1.02E+06	4.22E+03	0 ⁰	0 ⁰	1.01E+06	1.56E+02
Radioactive waste disposed	kg	8.31E-02	2.88E+00	0 ⁰	0 ⁰	8.28E+02	0 ⁰

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01/2017

EPD Transparency: Variables for Data Center Vendors to Disclose



1. **Program:** Non-profit organizations guide users through EPD creation process.



2. **Product Modeling Rules:** Product Category Rules and Product Specific Rules provide detailed instructions.



3. **Software:** Third-party software is available to automate the EPD creation process.



4. **Database:** Software must pull environmental impact data from one of several databases.



Members of the iMasons Climate Accord come from diverse backgrounds, representing technology, real estate, engineering companies, and service providers.

Spanning data centers, networks, cloud computing, energy, and cybersecurity, our Members are technology and infrastructure experts committed to advancing the design, construction, and operation of digital infrastructure.

200

MEMBER COMPANIES

130

COUNTRIES REPRESENTED

\$6T

MARKET CAP

HYPERSCALE



Enabling global carbon accounting and reduction in digital infrastructure

The iMasons Climate Accord is a coalition united on carbon reduction in digital infrastructure.

Our mandate is to achieve global carbon accounting of digital infrastructure to influence market-based decisions and drive the industry to achieve carbon neutrality.



Power WG

The goal is to decarbonize data center power in all markets worldwide by enabling transparency of carbon content of power on a real-time basis and building market-based incentives to source zero carbon power 24/365.



Materials WG

The goal is to decarbonize data center building materials by enabling transparent communication of embodied carbon and building market-based incentives to select zero carbon materials.



Equipment WG

The goal is to decarbonize data center equipment by enabling transparent communication of embodied carbon and building market-based incentives to select zero carbon equipment.



Maturity Model WG

The goal is to develop a way to evaluate and communicate progress toward decarbonization.



Equipment WG

Phase 1: Four Case Studies



- Materials Disclosure Form (TM65)



- LCA / EPD (ISO 14025)



- Overall CDP footprint for a vendor, pro-rated by spend on their equipment.



- Industry Averages and Weight

Phase 2: Sensitivity Analysis

The iMasons EWG will perform sensitivity analysis in two phases:

1. Calculate the embodied carbon of the same piece of equipment by each of the four methods above.
2. Perform LCA/EPD for the same piece of equipment using various data bases, assumptions, and programs.



Breakout Discussions

Discussion Questions



Group 1: Data Gathering & Disclosure

- What is Scope 3 data most useful for?
 - Optimizing design?
 - Procurement decisions?
 - Reporting to third parties (investors, regulators, industry orgs)?
 - Meeting internal net-zero/carbon neutrality goals?
- What should data center operators be asking for from suppliers?
- What should data center operators expect in terms of disclosure? Reduction commitments?

Group 2: Supply Chain Engagement

- What are some of the organizational resource requirements to engage supply chain in a decarbonization program?
- What kind of cross-functional collaboration is necessary?
- Is there a benefit to working with an outside consultant/partner on this process?
- What are the hurdles to engaging your suppliers on decarbonization?
- What are some best practices for getting a program up and running?

Group 3: Industry Guidance & Collaboration

- What are the benefits of approaching supply chain decarbonization together as an industry, instead of each on our own?
 - What are some resources that can help support this?
- What kind of role and support could industry organizations like iMasons play in facilitating supply chain decarbonization?

Group 4: Financial Implication

- What is the cost impact of making a Scope 3 a procurement criterion?
- What kind of internal investments are required?
- What tradeoffs might there be with cost/schedule?



Voluntary Share Out

Resources

- GHG Protocol: [Scope 3 Calculation Guidance](#)
- SBTi: [Target Development Guidance](#)
- SBTi: [Target Guidance for ICT Sector](#)
- Transform to Net Zero: [Climate Transition Action Plans Transformation Guide](#)
- CDP Technical Note: [Reporting on Transition Plans](#)
- EU: [Corporate Sustainability Reporting Directive \(CSRD\)](#)
- ISSB: [IFRS - ISSB issues inaugural global sustainability disclosure standards](#)
- TCFD: [Overview of the Task Force on Climate-related Financial Disclosure \(TCFD\)](#)
- SEC Carbon Disclosure Fact Sheet: [Enhancement and Standardization of Climate-Related Disclosures](#)
- Schneider Electric WP 53: [Recommended Inventory for Data Center Scope 3 GHG Emissions Reporting](#)
- Schneider Electric WP 99: [Quantifying Data Center Scope 3 GHG Emissions to Prioritize Reduction Efforts](#)



Thank You!



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