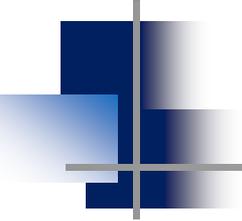
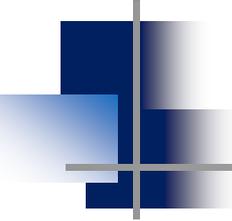


Sustainability Committee Update

NLA Sustainability Committee
Crystal Gateway Marriott, Arlington, VA
November 1, 2023
Mathieu Bouchard, Chairman
Wi-Fi: Marriott Conference PW: NLA 2023cm



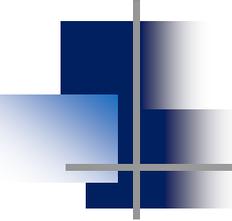
Carbon Roadmap for Lime



Carbon Neutrality Roadmap for Lime

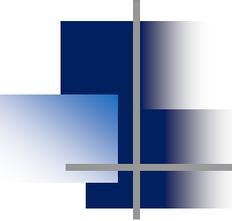
Purpose

- Lay out industry carbon reduction goals
- Steps needed to satisfy goals



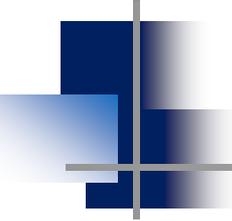
Roadmap Outline

- Executive Summary
- Overview of U.S. lime industry
- How lime is made
- How is lime used
- Lime's carbon footprint
- Our commitment to carbon neutrality



The Four Elements of Lime Industry Decarbonization

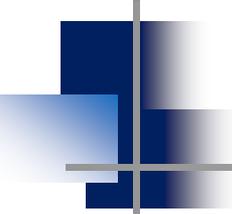
1. Reducing emissions from energy use
2. Carbon capture, utilization and storage
3. Offsets
4. Recarbonization of lime products



Reducing Emissions from Energy Use

Looking for examples of member projects

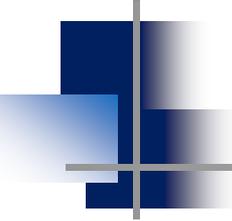
- Use of less carbon-intensive fuels
- Kiln efficiency improvements
- Indirect and transport emissions
- Other



Carbon Capture, Utilization and Storage

Looking for examples of member projects

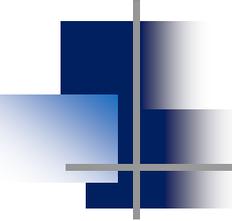
- Addressing the need for adequate CO₂ purity to enable pipeline transportation and underground sequestration
- The need for infrastructure investment for pipeline systems
- Viable injection sites



Offsets

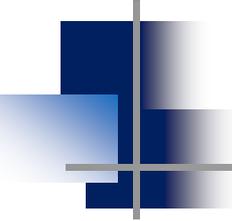
Looking for examples of member projects

- Investments in measures that reduce carbon emissions or absorb carbon outside the industrial process
- Any future federal/state GHG policy must give full credit for offset activities



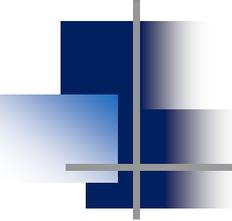
CO₂ Reabsorption by Lime

- Recognition of up to 33% reabsorption for certain applications of lime



What is Needed for Success?

- Full commitment by the lime industry
- Effective advocacy
- Legislation and regulation
- Investment



Discussion

State GHG Regulatory Updates

Wendy Merz
Director, Sustainability Services
wmerz@trinityconsultants.com

November 1, 2023



trinityconsultants.com



Agenda

- State Regulatory Updates
 - CA Climate Accountability Package
 - CO GHG Emissions and Energy Management for the Manufacturing Sector
 - CO Buy Clean Program
 - WA Climate Commitment Act Cap-and-Invest
 - NY Climate Leadership and Community Protection Act Cap-and-Invest
- GHG Protocol & TCFD Considerations

State Regulatory Updates

California Climate Accountability Package



- ▶ October 7, 2023 – Governor Newsom signs into law two laws which impose unprecedented reporting requirements on large US public and private companies
- ▶ Climate Corporate Data Accountability Act (SB 253)
 - Applies to US companies that do business in CA and have total annual revenues of \geq \$1 billion (calculated on a global basis)
- ▶ Climate-Related Financial Risk Act (SB 261)
 - Applies to US companies that do business in CA and have total annual revenues of \geq \$500 million (calculated on a global basis)
- ▶ Companies will be required to pay annual fees to CARB for administration of both laws
- ▶ CARB must develop and adopt regulations on or before 1/1/2025

Reference: <https://legiscan.com/CA/bill/SB253/2023>

California Climate Accountability Package



- ▶ Climate Corporate Data Accountability Act (SB 253)
 - Requires annual disclosure of Scope 1 and Scope 2 GHG emissions beginning 2026 (for CY 2025) **per GHG Protocol Standards**
 - Requires annual disclosure of Scope 3 GHG emissions beginning in 2027 (for CY 2026) **per GHG Protocol Standards**
 - Disclosures must be 3rd party verified
 - ◆ Scope 1 and 2 – starting in 2026
 - ◆ Scope 3 – starting in 2030
 - Failure to report, or failure to provide adequate disclosures, may result in administrative penalty up to \$500,000 per reporting year (Penalties not assessed for S3 misstatements, if made in good faith)

Reference: <https://legiscan.com/CA/bill/SB253/2023>

California Climate Accountability Package (continued)



- ▶ Climate-Related Financial Risk Act (SB 261)
 - Requires biennial climate-related financial risk reports to CARB beginning on or before January 1, 2026
 - Reporting **per the Task Force on Climate-Related Financial Disclosures (TCFD)**
 - ◆ Consolidated at the corporate level
 - Reports must be made publicly available on company website
 - Failure to report, or failure to provide adequate disclosures, may result in administrative penalty up to \$50,000

Climate Related Financial Risk defined as:

“material risk of harm to immediate and long-term financial outcomes due to physical and transition risks, including, but not limited to, risks to corporate operations, provision of goods and services, supply chains, employee health and safety, capital and financial investments, institutional investments, financial standing of loan recipients and borrowers, shareholder value, consumer demand, and financial markets and economic health.”

Reference: <https://legiscan.com/CA/bill/SB261/2023>



Colorado Regulation 27: GHG Emissions and Energy Management for the Manufacturing Sector

- ▶ 2021 Colorado law requires state's industrial sector to reduce GHG emissions 20% by 2030
- ▶ GHG Emissions and Energy Management for Manufacturing Sector (Reg 27)
 - Phase 1– EITE sources required to complete periodic audits - First audit completed by Dec. 31, 2022 and every 5 years through 2030
 - Phase 2 – Manufacturing Sources > 25,000 tpy CO₂e, Rulemaking
 - ◆ GEMM Phase 2 Rule adopted on September 22, 2023
 - ◆ Final Rule Language adopted on October 20, 2023

Colorado Regulation 27 - Phase 1 Sources



COLORADO
Department of Public
Health & Environment

- ▶ First audit required by Dec. 31, 2022 and every 5 years through 2030
- ▶ GHG Best Available Emissions Control Technology (BAECT) Audit:
 - Units > 100,000 tpy CO₂e must assess feasibility of Carbon Capture and Underground Storage or Utilization (CCUS)
 - Rule applies to four facilities: EVRAZ Steel Mill in Pueblo, Holcim in Florence, GCC Rio Grande in Pueblo, Cemex Construction Materials South in Lyons
 - Use Social Cost of Carbon as cost threshold
- ▶ Facilities to achieve a 5% or better emissions reduction by the 3rd audit year via implementation of BAECT (i.e., BACT) and Energy BMPs
- ▶ Reductions may be achieved via:
 - Reducing GHG emissions directly at the facility
 - Installing a renewable energy project reducing facility energy use
 - GHG credits awarded by the Air Pollution Control Division

Reference:

<https://cdphe.colorado.gov/greenhouse-gas-emissions-and-energy-management-for-manufacturing-in-colorado#:~:text=The%20rule%20was%20effective%20starting,GHG%20emissions%20total%20in%202005.>

Colorado Regulation 27 - Phase 2 Sources



COLORADO
Department of Public
Health & Environment

- ▶ Rule identifies 18 facilities by name and sets mass-based emission limits for each (no lime plants)
- ▶ Interim limits for the 2024 – 2029 period, and 2030 final limits for each named facility
 - Interim limits determined by comparing facility’s direct GHG emissions in CY2015 to greater of CY2021 or CY2022 emissions
 - The larger that reduction, the less future reductions are required for that facility
 - Facility’s total reduction also based on their % total GEMM 2 group’s GHG emissions
- ▶ Rule also creates a limited credit trading program for Phase 2 sources that:
 - Have excess GHG emission reductions (credits)
 - Demonstrate that they have implemented all technically and economically feasible controls and still need to purchase credits to achieve their mass-based emission limit

Reference: <https://cdphe.colorado.gov/gemm-phase-2-rule>

Colorado Buy Clean Program

Buy Clean Colorado (BCCO) Act applies to state public project with cost > \$500,000 and for which state agency issues solicitation on or after 1/1/2024

Material ¹	2023 OSA Updated Limits ²
Asphalt and mixtures³	1. Asphalt Mixtures (1 metric ton): 85 kg CO2 eq.
Cement & Concrete Mixtures⁴	1. ReadyMix Concrete (in kgCO2e/m3 or kilograms of carbon dioxide equivalent per cubic meter)
	a. 0-2500 psi: 232
	b. 2501-3000 psi: 255
	c. 3001-4000 psi: 301
	d. 4001-5000 psi: 358
	e. 5001-6000 psi: 379
	f. 6001-8000 psi: 440
	g. Lightweight 0-3000 psi: 484
	h. LW 3001-4000 psi: 532
	j. LW 4001-5000 psi: 580
	2. Cement (in kgCO2e/t or kilograms of carbon dioxide equivalent per metric ton): 1,112
Glass⁵	1. Flat Glass (1 metric ton): 1510 kg CO2 eq.
Post-Tension Steel⁶	No sufficient data to set a valid threshold at this time
Reinforced Steel⁷	1. Fabricated Steel Reinforcing Bar "Rebar" (per 1 metric ton): 1030 kg CO2 eq.
Structural Steel⁸	1. Fabricated Hot-rolled steel (per 1 metric ton): 1220 kg CO2 eq.
	2. Fabricated Plate steel (per 1 metric ton): 1730 kg CO2 eq.
	3. Fabricated Hollow Structural Sections (per 1 metric ton): 1990 kg CO2 eq.
Wood Structural Elements⁹	1. Wood Framing/ Softwood Lumber (1 m3): 63.12 kg CO2 eq
	2. Plywood (1 m3): 219.32 kg CO2 eq
	3. OSB Sheathing (1 m3): 242.58 kg CO2 eq
	4a. Laminated Strand Lumber (1 m3): 274.90 kg CO2 eq
	4b. Laminated Veneer Lumber (1 m3): 361.45 kg CO2 eq
	5. Glued Laminated Timber (1 m3): 137.19 kg CO2 eq

Reference: <https://osa.colorado.gov/energy-environment/buy-clean-colorado-act>

Colorado v California Buy Clean Limits

Material ¹	2023 OSA Updated Limits ²
Asphalt and mixtures³	1. Asphalt Mixtures (1 metric ton): 85 kg CO ₂ eq.
Cement & Concrete Mixtures⁴	1. ReadyMix Concrete (in kgCO ₂ e/m ³ or kilograms of carbon dioxide equivalent per cubic meter)
	a. 0-2500 psi: 232
	b. 2501-3000 psi: 255
	c. 3001-4000 psi: 301
	d. 4001-5000 psi: 358
	e. 5001-6000 psi: 379
	f. 6001-8000 psi: 440
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Wood Structural Elements⁹	1. Wood Framing/ Softwood Lumber (1 m ³): 63.12 kg CO ₂ eq
	2. Plywood (1 m ³): 219.32 kg CO ₂ eq
	3. OSB Sheathing (1 m ³): 242.58 kg CO ₂ eq
	4a. Laminated Strand Lumber (1 m ³): 274.90 kg CO ₂ eq
	4b. Laminated Veneer Lumber (1 m ³): 361.45 kg CO ₂ eq
	5. Glued Laminated Timber (1 m ³): 137.19 kg CO ₂ eq

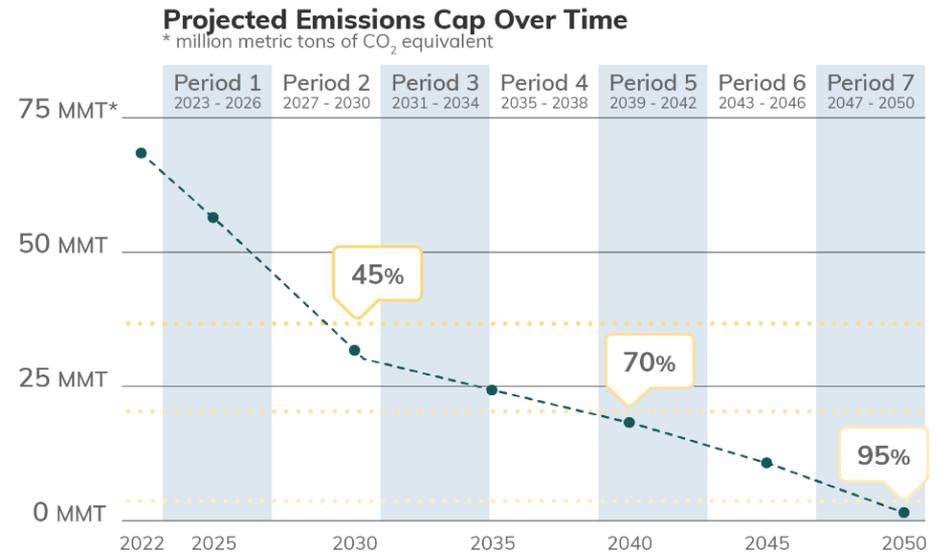
Eligible Material	Maximum Acceptable GWP Limit ^[1] For Unfabricated Product (Cradle-To-Gate) ^[2]	Maximum Acceptable GWP Limit ^[1] For Fabricated Product (A1 Module Only) ^[3]
Hot-rolled structural steel sections	1,010 kg CO ₂ eq. ^[4] or 1.01E+03 kg CO ₂ eq. for one metric ton of structural steel.	1,080 kg CO ₂ eq. or 1.08E+03 kg CO ₂ eq. for one metric ton of structural steel.
Hollow structural sections	1,710 kg CO ₂ eq. or 1.71E+03 kg CO ₂ eq. for one metric ton of structural steel.	1,830 kg CO ₂ eq or 1.83E+03 kg CO ₂ eq for one metric ton of structural steel.
Steel plate	1,490 kg CO ₂ eq. or 1.49E+03 kg CO ₂ eq. for one metric ton of structural steel.	1,590 kg CO ₂ eq. or 1.59E+03 kg CO ₂ eq. for one metric ton of structural steel.
Concrete reinforcing steel	890 kg CO ₂ eq. or 8.90E+02 kg CO ₂ eq. for one metric ton of bar.	920 kg CO ₂ eq. or 9.20E+02 kg CO ₂ eq. for one metric ton of bar.
Flat glass	1,430 kg CO ₂ eq. or 1.43E+03 kg CO ₂ eq. for one metric ton of glass.	N/A
Light-density mineral wool board insulation	3.33 kg CO ₂ eq. for 1 m ² of insulation at R _{SI} =1. ^[5]	N/A
Heavy-density mineral wool board insulation	8.16 kg CO ₂ eq. for 1 m ² of insulation at R _{SI} =1	N/A

Reference: <https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Buy-Clean-California-Act>

WA State Climate Commitment Act - Overview



- ▶ Climate Commitment Act (SB 5126) Legislation enacted in May 2021 - effective in 2023
- ▶ Targets 95% reduction compared to 1990 levels by 2050
- ▶ Went into effect in January 2023
- ▶ Linkage to other jurisdictions (e.g., California, Quebec)



Reference: <https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Cap-and-invest>

Total Program Baseline: Covered Emissions



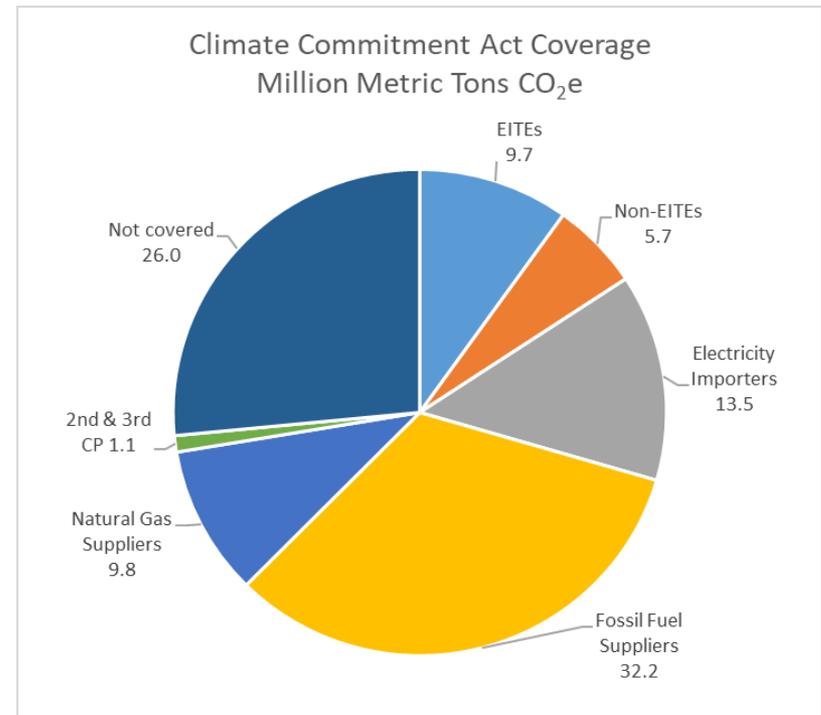
Covered – 75%

- ▶ Gasoline and on-road diesel*
- ▶ Electricity consumed in Washington
- ▶ Facilities generating more than 25,000 metric tons/year or more of CO₂e emissions
- ▶ Natural gas distributed to homes and commercial businesses
- ▶ 2027 – waste to energy facilities
- ▶ 2031 – railroads and certain landfills

Not Covered – 25%

- ▶ Agricultural operations
- ▶ Small businesses with under 25,000 metric tons/year of CO₂e emissions
- ▶ Aviation fuels
- ▶ Some marine fuels

* Mobile sources are covered through fuel suppliers, not directly covered



Reference: <https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Cap-and-invest>

Climate Commitment Act – Free Allowances



Free allowances for Emission-intensive, trade-exposed (EITE) facilities

- ▶ **100%** of the Carbon Intensity (CI) benchmark (or mass-based baseline) during 1st compliance period
- ▶ **97%** of the CI benchmark during 2nd compliance period
- ▶ **94%** of the CI benchmark during 3rd compliance period
 - If the Legislature does not adopt a compliance obligation for EITE facilities by December 1, 2027, continue to receive 94%



Reference: <https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Cap-and-invest>

NY CLCPA Cap-and-Invest Program Status



NYSERDA

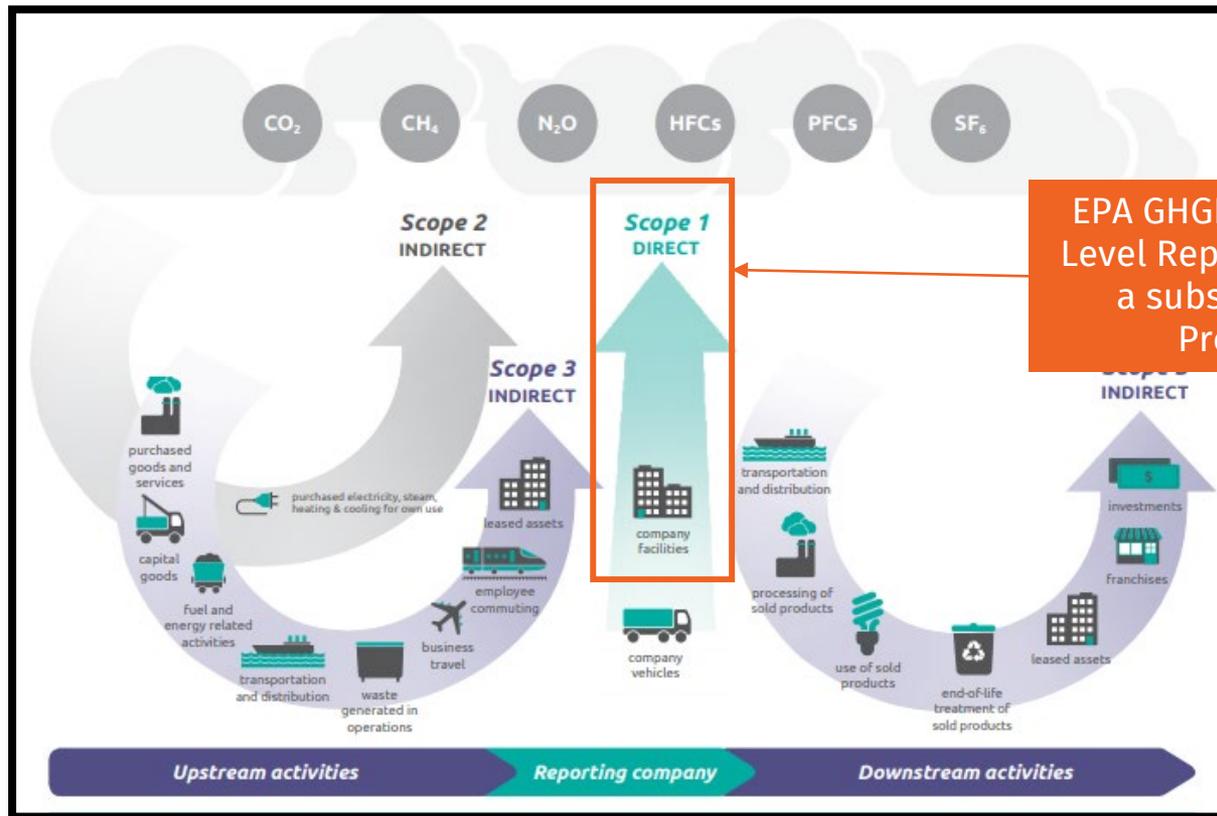
Department of
Environmental
Conservation

- ▶ Three regulations under development to support the program:
 - Links to comments pages outline major design elements for each:
 - ◆ Cap-and-Invest Rule: <https://capandinvest.ny.gov/Cap-and-Invest-Rule>
 - ◆ Mandatory Reporting Rule: <https://capandinvest.ny.gov/Mandatory-Reporting-Rule>
 - ◆ Auction Rule: <https://capandinvest.ny.gov/Auction-Rule>
- ▶ Basing off of California AB32 regulations – considering set-aside for EITE industry sectors



GHG Protocol & TCFD Considerations

Emissions Across the Value Chain



EPA GHGRP and State Level Reporting is only a subset of GHG Protocol

Reference: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf.

Scope 1 Emissions

▶ Stationary Combustion

- Boilers, Furnaces, Burners, Turbines, Heaters, Incinerators, Engines, Flares, etc.
- Including **Office Buildings, Warehouses**, etc.

▶ Mobile Combustion

- Autos, Trucks, Buses, Trains, Airplanes, Marine vessels, etc.
- Includes non-road equipment

▶ Process Emissions

- Physical or Chemical Manufacturing Processes

▶ Fugitive Emissions

- Intentional or unintentional releases that do not pass through stack, vent, exhaust pipe, etc.
- Examples: **electric equipment SF₆**, **refrigerant leaks**, gas pipeline or landfill CH₄

Examples of sources not currently covered under EPA GHGRP or state reporting.

Scope 2 Emissions

► Scope 2 Guidance Provides Two Reporting Options:

- **Location-Based**

- ◆ Based on emission factors for locally-generated energy
- ◆ Reflects average emissions intensity of local grid

- **Market-Based**

- ◆ Allows for use of source or supplier-specific emission rates associated with organization's energy purchases (e.g., purchase power agreements)
- ◆ Emission factor based on contractual instruments for purchasing energy attributes and "residual mix"
- ◆ Recognizes use of energy supply changes to drive GHG reductions

Scope 3 Emissions

Upstream or downstream

Upstream scope 3 emissions

Downstream scope 3 emissions

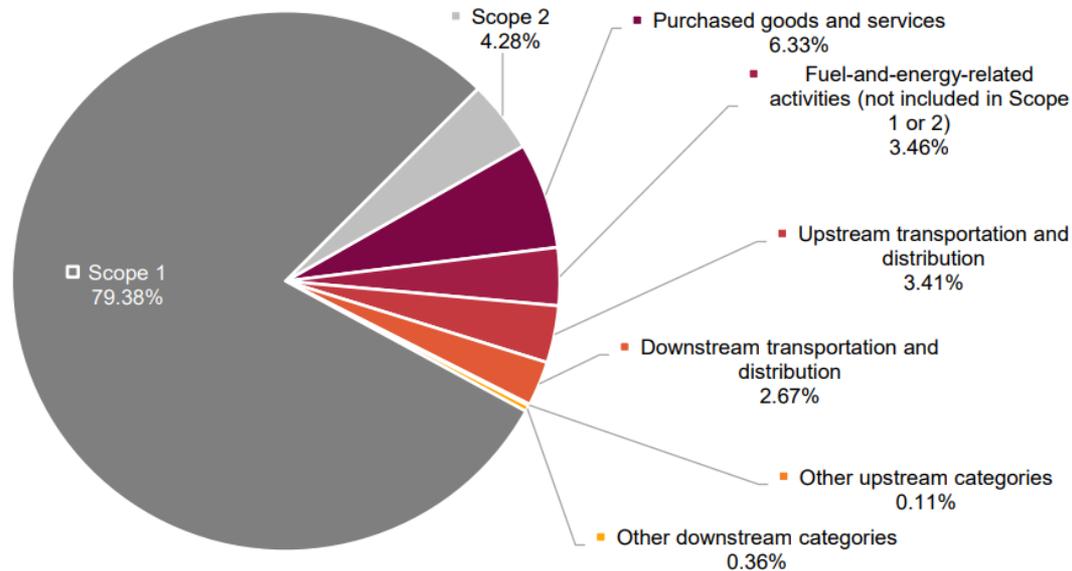
Scope 3 category

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities (not included in scope 1 or scope 2)
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets
9. Downstream transportation and distribution
10. Processing of sold products
11. Use of sold products
12. End-of-life treatment of sold products
13. Downstream leased assets
14. Franchises
15. Investments

Reference: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf

CDP Cross-Sector Technical Reference Document – Cement Sector

Scope 3 Categories as % Total Scope 1+2+3 Emissions - Cement Sector



Prioritize:

- Purchased Goods & Services
- FERA
- Upstream T&D
- Downstream T&D

Reference: https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/003/504/original/CDP-technical-note-scope-3-relevance-by-sector.pdf

TCFD – Recommended Disclosures

Figure 6
Recommendations and Supporting Recommended Disclosures

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	Recommended Disclosures	Recommended Disclosures	Recommended Disclosures
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	a) Describe the organization's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	b) Describe the organization's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Reference: Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (2021) - <https://www.fsb-tcfd.org/publications/>.

TCFD – Climate-Related Risks & Opportunities

Risks	
 Transition	<p>Policy and Legal</p> <ul style="list-style-type: none"> • Carbon pricing and reporting obligations • Mandates on and regulation of existing products and services • Exposure to litigation <p>Technology</p> <ul style="list-style-type: none"> • Substitution of existing products and services with lower emissions options • Unsuccessful investment in new technologies <p>Market</p> <ul style="list-style-type: none"> • Changing customer behavior • Uncertainty in market signals • Increase cost of raw materials <p>Reputation</p> <ul style="list-style-type: none"> • Shift in consumer preferences • Increased stakeholder concern/negative feedback • Stigmatization of sector
 Physical	<ul style="list-style-type: none"> • Acute: Extreme weather events • Chronic: Changing weather patterns and rising mean temperature and sea levels

Opportunities	
 Resource Efficiency	<ul style="list-style-type: none"> • Use of more efficient modes of transport and production and distribution processes • Use of recycling • Move to more efficient buildings • Reduced water usage and consumption
 Energy Source	<ul style="list-style-type: none"> • Use of lower-emission sources of energy • Use of supportive policy incentives • Use of new technologies • Participation in carbon market
 Products & Services	<ul style="list-style-type: none"> • Development and/or expansion of low emission goods and services • Development of climate adaption and insurance risk solutions • Development of new products or services through R&D and innovation
 Markets	<ul style="list-style-type: none"> • Access to new markets • Use of public-sector incentives • Access to new assets and locations needing insurance coverage
 Resilience	<ul style="list-style-type: none"> • Participation in renewable energy programs and adoption of energy-efficiency measures • Resource substitutes/diversification

Reference: https://assets.bbhub.io/company/sites/60/2020/10/TCFD_Booklet_FNL_Digital_March-2020.pdf.

TCFD – Supplemental Guidance for Construction Materials

- ▶ TCFD 2021 Implementation Guidance provides additional guidance for industries in Materials and Buildings Group - considered to have financial exposures due to high emissions, high energy consumption, dependency on water availability and/or physical effects of climate change
- ▶ Accelerated R&DDD critical for this group, hence disclosures re: R&DDD plans and progress valuable
- ▶ Disclosures should focus on assessments and potential impacts of:
 - Stricter regulation of emissions and/or carbon pricing and related cost impacts
 - Increasing frequency and severity of acute weather events and increasing water scarcity
 - Opportunities for products that improve efficiency, reduce energy use, support circularity



Reference: Task Force on Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (2021) - <https://www.fsb-tcf.org/publications/>.



Questions | Discussion



**PRESENTATION TO THE NATIONAL LIME
ASSOCIATION SUSTAINABILITY COMMITTEE**

November 1, 2003

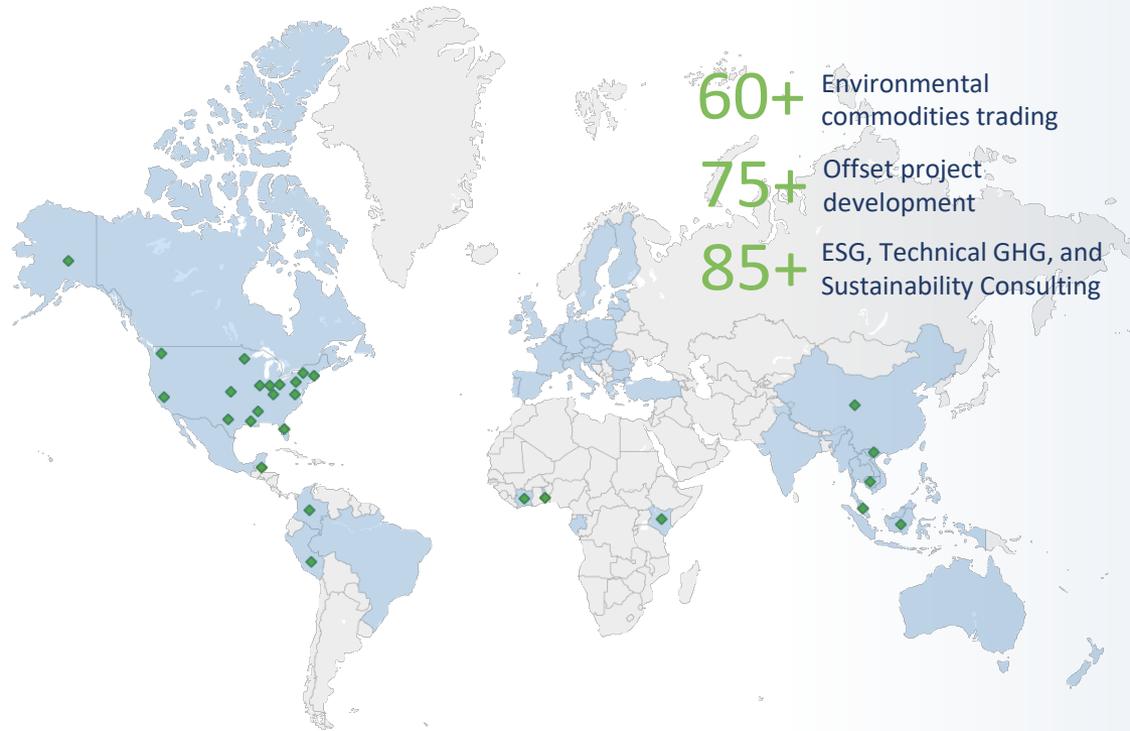
AGENDA

1. About ClimeCo
2. Opportunity Landscape
3. Potential Funding Opportunities
 - Voluntary Carbon Market
4. Key Takeaways
5. Q&A



ABOUT CLIMECO

Our Global Footprint



60+ Environmental commodities trading
 75+ Offset project development
 85+ ESG, Technical GHG, and Sustainability Consulting

ClimeCo has extensive experience helping clients navigate their sustainability journeys, develop projects, and procure environmental commodities across the globe. Specifically, we have worked in the following locations:

- **North America (local office location)**
- **Asia (local office location)**
- **Europe**
- **Oceania**
- **South America**
- **Africa**

In addition to our global footprint, we benefit from connections to the **Warburg Pincus network**, which includes over 1,000 companies globally.

■ Example ClimeCo Coverage from Previous Engagements
 ◆ Project(s) Developed or In Development

Our Solutions

ClimeCo is an award-winning provider of vertically-integrated sustainability solutions. Our team of experts across North America supports global clients with their climate goals.

ESG ADVISORY

- Strategy Development
- Risk Management
- Impact Assessment
- Voluntary Disclosure
- Regulatory Optimization

PROJECT DEVELOPMENT

- Carbon Offset & Other Environmental Commodity Creation
- Project Finance
- Project Implementation & Operation
- Quantitative Methodology Development

ENVIRONMENTAL CREDITS

- Environmental Commodity Sourcing & Marketing
- Carbon and Renewable Energy Credits
- Hedge Strategy Optimization
- Management Process Development

The background of the slide is a photograph of a coastal landscape. In the foreground, there is a body of water. In the middle ground, a large, rugged mountain range stretches across the frame. The mountains have a mix of green vegetation and brownish-grey rocky outcrops. The sky is overcast with grey clouds. A white rectangular border is superimposed over the center of the image, containing the text 'OPPORTUNITY LANDSCAPE'.

OPPORTUNITY LANDSCAPE

The Easy Button for the Whole Sustainability Journey

Understanding the Landscape

Building the database



Assessing past, current, and future opportunities

Enabling industry to better understand their operating landscape

Identify, track, and monitor

Building upon the database



Honing the search parameters and scope to better serve our partners interests

- Continuously building upon previous research
- Providing routine updates

Grant Writing and Review Support



Grant writing support – As needed basis

- Draft submissions
- Supplementary material and resources

Decarbonization Project Development



Other Opportunities – Voluntary Carbon market

- Feasibility study for protocol development
- Project development and credit generation

Opportunity Mapping and Management

ClimeCo’s Policy and Advisory team has vast experience identifying and assessing opportunities available to industry in their journey to decarbonize. Through this expertise, we empower our partners to capture emerging opportunities.

ALBERTA	Program	Description	Incentive	Eligibility
	Alberta Innovates, Clean Resources - Continuous Intake Program	Aiming to accelerate technology development and deployment, Clean Resources has five technology portfolios that utilize continuous intake processes and targeted calls for proposals. Two of these are: <ol style="list-style-type: none"> Advanced Hydrocarbons and Clean Technology – Covers Cleaner Hydrocarbon Production and Innovative Hydrocarbon Products Clean Technology – Covers CCUS and Hydrogen 	Project funding can be up to, and typically does not exceed \$2 million per project. <ul style="list-style-type: none"> The continuous intake programs normally support 25-50% of total project costs Co-funding of projects with other funding agencies is encouraged 	Project Guidelines <ul style="list-style-type: none"> Projects commercial The pro Alberta value pr If the from ot Alberta not be e program Alberta other fu but all a
CANADA (FEDERAL)	Program	Description	Incentive	Eligibility
	Investment Tax Credit for Carbon Capture, Utilization, and Storage, Recovery Mechanism, Climate Risk Disclosure, and Knowledge Sharing	The CCUS Tax Credit is a federal government investment of \$2.6 billion over five years starting in 2022-2023, with \$1.5 billion annually between 2026 and 2030 to provide investment tax credits to industrial sites which incur “eligible” CCUS expenses starting in 2022.	From 2022-2030 the ITC rates are set at: <ul style="list-style-type: none"> 60% for investment in equipment that captures CO₂ in direct air capture projects 50% for investment in the capture of CO₂ equipment for all other CCUS projects 37.5% for transportation, storage, and use of equipment 	Project Open <ul style="list-style-type: none"> Business expense Equipment capture, utilization Ineligible required hydroge processi feasibility design st
	Energy Innovative Program, CCUS RD&D Call	Natural Resources Canada to grant \$319 million over seven years to research, development, and demonstrations to advance the commercial viability of CCUS technologies. \$50 million was allocated towards CCUS RD&D –	\$269 million to be allocated towards: <ol style="list-style-type: none"> Storage/Sequestration: Characterize and develop safe opportunities across Canada 	Criteria for S Utilization fu available at t

Funding and Grant Review Research

ClimeCo utilizes a highly sophisticated tracking and monitoring system that leverages its archive of knowledge and network to ensure its partners remain abreast of funding opportunities available as they emerge.

Our Approach :

- **Market intelligence** – Continuous proactive review of opportunities
 - Federal and state-level opportunities
 - Key regulatory considerations, implications, and limitations
 - ClimeCo reviews and recommends partnerships where applicable
 - Noteworthy updates are sent on an as-it-happens basis
- **Routine communication and updates**
 - Frequency and mode of communication(s) may be adjusted based on the needs of the relationship and scope

Note: Where funding opportunities are not available, ClimeCo can support our partner develop a government engagement strategy, bringing attention to the industry realities and the need to support low-carbon initiatives.

Capturing Funding Opportunities

Beyond identifying potential funding opportunities, ClimeCo provides a full scope grant service offering to clients. As evidenced by several successful federal and state awards, ClimeCo possesses the diligence necessary to ensure that clients meet the stringent submission requirements of federal and state agencies.

Grant Support – The “Story Telling”

→ **We Offer:**

- Strategy
- Draft submissions
- Supplementary material and resources

→ **Our Approach:**

- Our team draws on its vast expertise to ensure work with the client to generate focused content for each facet of the application.
- ClimeCo’s emphasis on our clients’ unique qualifications and past accomplishments puts forth a compelling case for the proposal review committee.



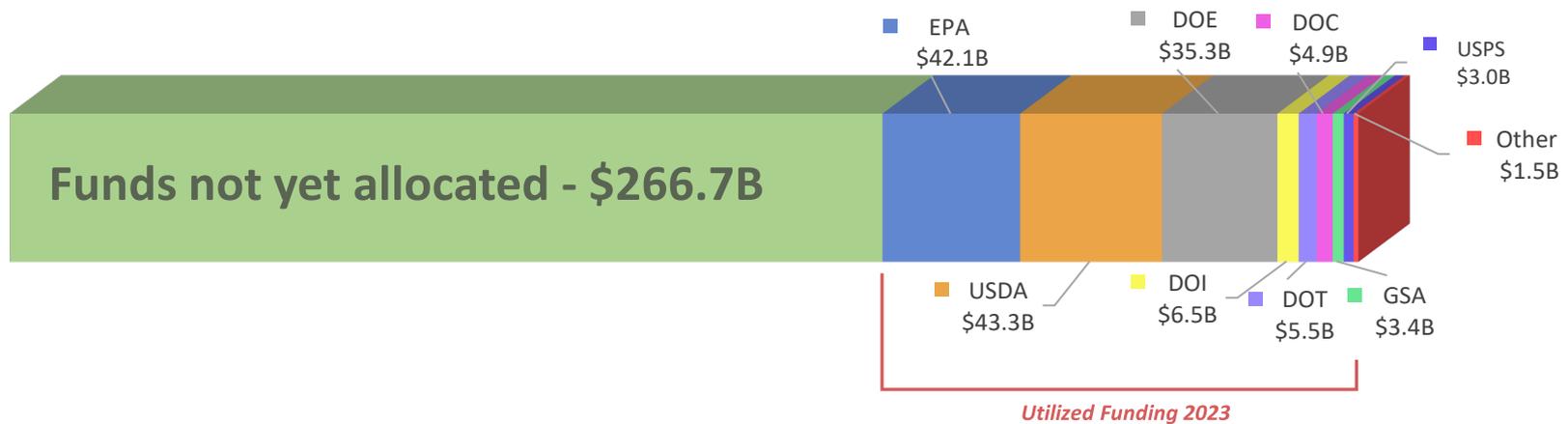


POTENTIAL FUNDING OPPORTUNITIES

Inflation Reduction Act

The Inflation Reduction Act includes \$370 billion in investments in infrastructure including decarbonization technologies, R&D for carbon capture and storage and clean hydrogen, domestic manufacturing, and domestic energy production over the next 10 years. In addition to the direct investments, there are multiple tax incentives in the bill.

Funding allocated as of September 21, 2023



Federal Funding Programs



Loan Guarantees

- **Section 1703** – DOE can provide loan guarantees to energy intensive industries for projects that reduce energy consumption or greenhouse gas emissions; The IRA provided an additional \$40 billion in loan authority for Section 1703 grants.
- **Section 1706** – DOE can provide loan guarantees to energy intensive industries for projects that clean up existing energy infrastructure.



Low Interest Rate Loans

- The **Tennessee Valley Authority** offers low interest rate loans to energy intensive industries for energy efficiency projects and renewable energy installations. The IRA provides additional funding for TVA loans.
- **Department of Agriculture Rural Development Loans** – USDA Rural Development offers low-interest rate loans to rural businesses and organizations for a variety of purposes including energy efficiency and renewable energy projects.



Facility Modernization and Expansion Grants

- **Advanced Manufacturing Office (AMO) grants** – Provide grants to energy intensive industries for projects that develop and implement new energy-efficient projects and renewable energy installations.

Federal Funding Programs



Tax Credits

- **Section 45Q tax credit** – For carbon capture and storage was increased under the IRA for these projects.
- **Section 45C tax credit** – IRA expanded the Section 45C tax credit to include investments in energy communities. Energy communities are communities that are disproportionately affected by air pollution from industrial facilities. The expanded tax
- **Production Tax Credit** – Extended and expanded in the IRA to businesses that generate electricity from renewable sources including wind, solar, geothermal, and **hydrogen (45V)**.



Other Incentives

- **The Climate Leaders Program** is a voluntary program that helps companies reduce their greenhouse gas emissions.

Federal Funding Programs



Department of Energy Funding Opportunity Announcement: Carbon Management (DE-FOE-0002614)

- Rolling funding opportunity for carbon conversion technology, CO₂ removal technology, or carbon storage technology
- Past funding awardees have gotten up to **\$3 million**, examples include:
 - **\$2.5 million** to C-Crete to demonstrate a new concrete product that outperforms Portland Cement concrete while being carbon negative
 - **\$500,000** to AirCapture LLC to carbon-neutral methane from captured CO₂



Department of Energy Funding Opportunity Announcement: Industrial Decarbonization and Emissions Reduction Demonstration-to-Deployment Funding Opportunity (DE-FOA-0002936)

- Awardees not yet announced, but up to **\$6 billion** in federal funds made available for decarbonization at industrial facilities coming from the Bipartisan Infrastructure Law and Inflation Reduction Act
- **\$35-500 million** available for near-net-zero facility build projects, facility-level large installations and overhaul retrofit demonstrations, or system upgrades and retrofits within existing facilities

Federal Funding Programs



INFLATION REDUCTION ACT PROVISIONS

Qualifying Advanced Energy Project Credit \$48C Program

An investment tax credit of up to **30%** of qualified **INVESTMENTS** for certified projects.

ROUND 1: The \$48C Program allocates approx. **\$4 BILLION** to projects that expand clean energy manufacturing and recycling + critical materials refining, processing and recycling, and for projects that reduce greenhouse gas emissions at industrial facilities.

The \$48C Program sets aside 40% of funds for projects in designated communities with closed coal plants or mines — approximately \$1.6 Billion in round 1.

Applicants submitted concept papers seeking a total of nearly **\$42 BILLION** in funding across all categories of \$48C projects, including nearly **\$11 BILLION** for projects in designated **ENERGY COMMUNITIES**.

Together, these proposed projects identify over **\$142 BILLION** in potential investments to strengthen American industry and clean energy supply chains.

www.energy.gov/mesc **MESC**

Tax Credit 48C

- Section 48C of the United States IRS Tax Code provides an Advanced Energy Project Credit which allocates up to **\$10 billion** to emissions reduction projects targeting industry
- The requirements are open ended - Any investments resulting in more than 20% reductions in emissions would qualify
- The qualifying Advanced Energy Project Credit for any taxable year is equal to **30% of the qualified project investment in that year**

Federal Funding to Support Environmental Product Declarations (EPD)

- \$100 million in grants as part of the EPA’s Reducing Greenhouse Gas Emissions for Construction Materials program
- Help manufacturers develop Environmental Product Declarations (EPDs) which show a products environmental impact
- EPDs are important as buyers, especially in public projects, are increasingly seeking sustainable products – ex: “Buy Clean Concrete” mandate in New York state, Federal Buy Clean Initiative, etc.

VOLUNTARY CARBON MARKET (VCM)

– Offsets and Opportunities –

Carbon Offsets as a Solution

PROBLEM

- Lack of Incentives to Reduce Emissions

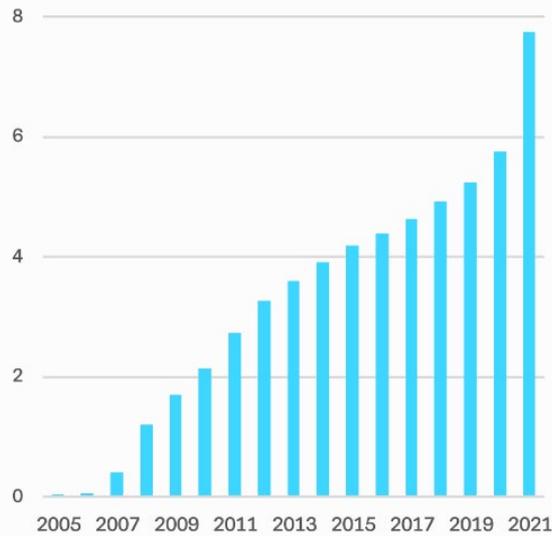
SOLUTION

- Carbon Offsets Provide Financial Incentive Where None Exists



Significant Growth: The Voluntary Carbon Market (VCM)

VCM Size by Cumulative Value of Traded Credits, USD, billions



CSIS | ENERGY SECURITY AND CLIMATE CHANGE PROGRAM

VCM AT A GLANCE

\$36B

Directed at projects between 2012 - 2022

\$50B

Potential market valuation for 2030

77

Countries developed credits in 2022

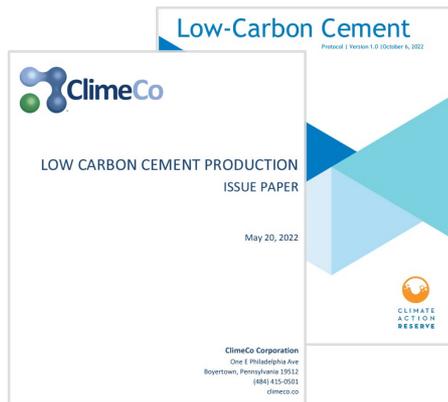
155M

VCM credits transacted in 2022

Generating Environmental Commodities

A Leading Methodology Developer

ClimeCo has led and participated in the development of numerous quantitative methodologies.



Examples Include:

- *Low-Carbon Cement (Climate Action Reserve)*
- Nitric Acid Abatement (Climate Action Reserve)
- Adipic Acid Abatement (Climate Action Reserve)
- China Adipic Acid Abatement (Climate Action Reserve)
- Dairy Digesters (Climate Action Reserve – Climate Forward)
- Oil & Gas Emission reduction (in development)
- Ozone depleting substances, composting, reforestation, forest management and more

ClimeCo has generated
30,000,000+

carbon offsets with the Climate Action Reserve, American Carbon Registry, and Verra's Verified Carbon Standard

New Methodology Development is a Public Process

Methodology creation is a highly public process that can take 1.5 – 2+ years to complete

The Registry will ultimately decide if the idea is suitable for carbon credits and sets the rules for the methodology process.



An aerial photograph of a large, winding lake in a mountain valley. The lake is surrounded by dense evergreen forests and rugged mountains in the background under a cloudy sky. A white rectangular box is superimposed over the center of the image, containing the text "KEY TAKEAWAYS".

KEY TAKEAWAYS

Key Takeaways

01

Regulatory pressures to decarbonize are increasingly prevalent.

02

Additionally, companies are experiencing pressures to decarbonize from all stakeholders.

03

It's in the best interest of companies to "get ahead of this curve" by establishing their current position, and pro-actively establishing a roadmap to address the challenge.

04

There are existing and emerging opportunities for industry to generate value from decarbonization.

Q&A

– Thank you! –

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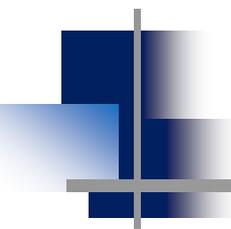
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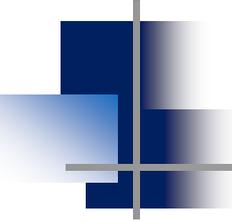
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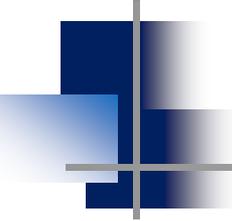


NLA Sustainability Committee
November 1
Arlington, VA



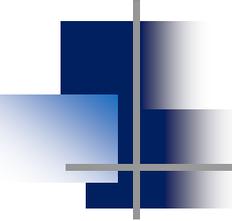
EPA National Enforcement and Compliance Initiatives (NECI) 2024-2027

- EPA Office of Enforcement and Compliance Assurance (OECA) has selected six priority areas as National Enforcement and Compliance Initiatives (NECIs) for Fiscal Years 2024-2027



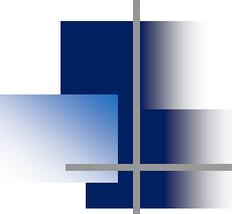
Priority areas as National Enforcement and Compliance Initiatives for Fiscal Years 2024-2027

- Initiatives selected for the FY 2024-2027 cycle, Office of Enforcement and Compliance Assurance (OECA) relied upon three criteria;
 1. The need to address serious and widespread environmental issues and significant violations impacting human health and the environment, particularly in overburdened and disadvantaged communities
 2. A focus on areas where federal enforcement authorities, resources, and/or expertise are needed to hold polluters accountable and promote a level playing field
 3. Alignment with EPA's Strategic Plan



Six 2024-2020 NEICs

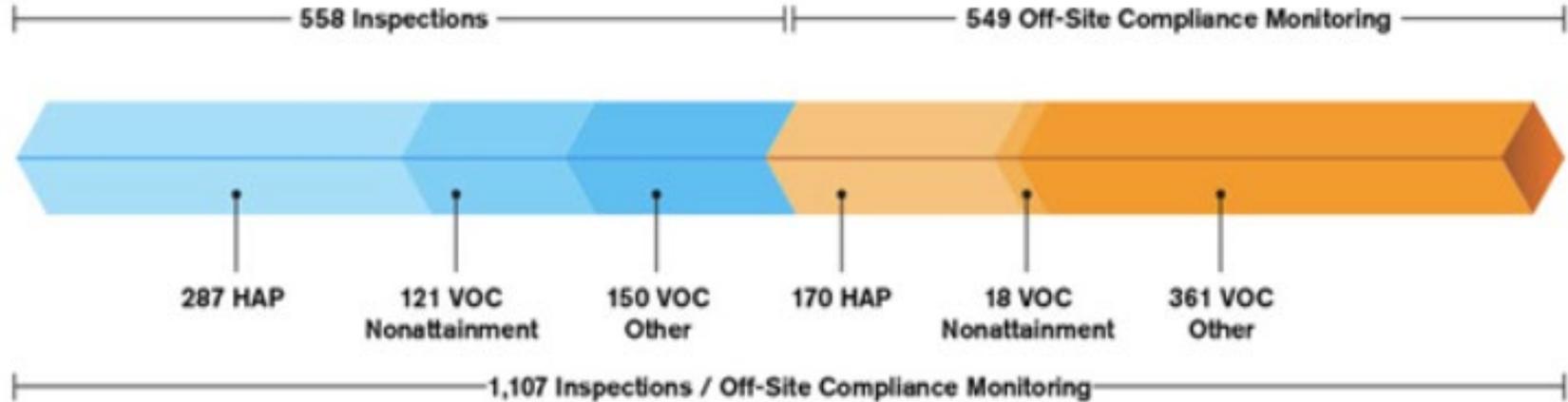
1. Mitigating climate change (new)
2. Addressing Exposure to Per- and Polyfluoroalkyl Substances (PFAS) (new)
3. Protecting Communities from Coal Ash Contamination (new)
4. Reducing Air Toxics in Overburdened Communities (modified)
5. Increasing Compliance with Drinking Water Standards (continued)
6. Chemical Accident Risk Reduction (continued)



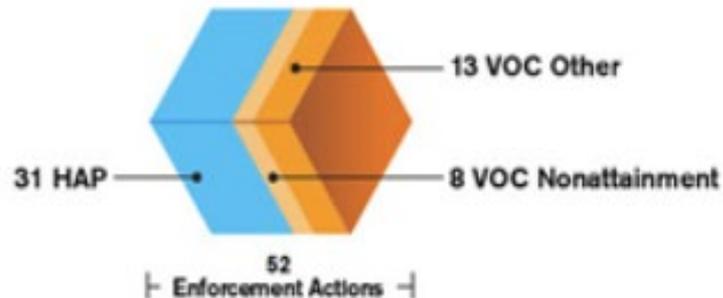
4. Reducing Air Toxics in Overburdened Communities

- A modification to its existing initiative started in FY 2020 as *Creating Cleaner Air for Communities (CCAC)*
- OECA will focus on overburdened communities selected by each Region that are facing high levels of toxic air pollution from HAPs
- Each Region will make selections in partnership with states based on fence-line monitoring and other “sophisticated tools” that allow detection of toxic air pollution

FY2022 Number of CCAC Facilities with EPA Inspections / Off-Site Compliance Monitoring



FY2022 Number of CCAC Facilities with EPA Concluded Enforcement Actions

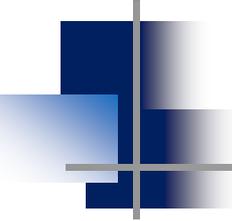


"HAP": Sources of hazardous air pollutants (HAPs) having significant impact on air quality and health in communities.

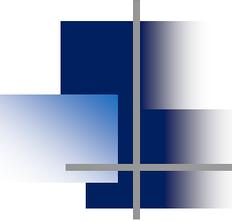
"VOC Nonattainment": Significant sources of volatile organic compounds (VOCs) having a substantial impact on air quality and located within an area designated in ozone nonattainment with the National Ambient Air Quality Standards (NAAQS) or in a nonattainment area based upon the Ozone Transport Region.

"VOC Other": Significant sources of VOCs that may affect an area's attainment of the NAAQS and/or may adversely affect vulnerable populations.

EPA Top Priorities – GHGs and PFAS

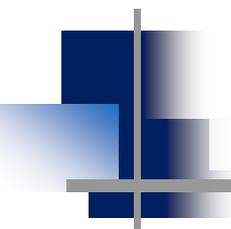


- **PFAS** - This initiative will focus on implementing EPA's PFAS Strategic Roadmap
 - Characterize releases, control ongoing releases that pose a threat to human health and the environment, ensure compliance with permits, and address endangerment issues.
- **GHGs** - OECA indicated "...enforcement actions to address illegal carbon dioxide, nitrous oxide, and volatile organic compounds."



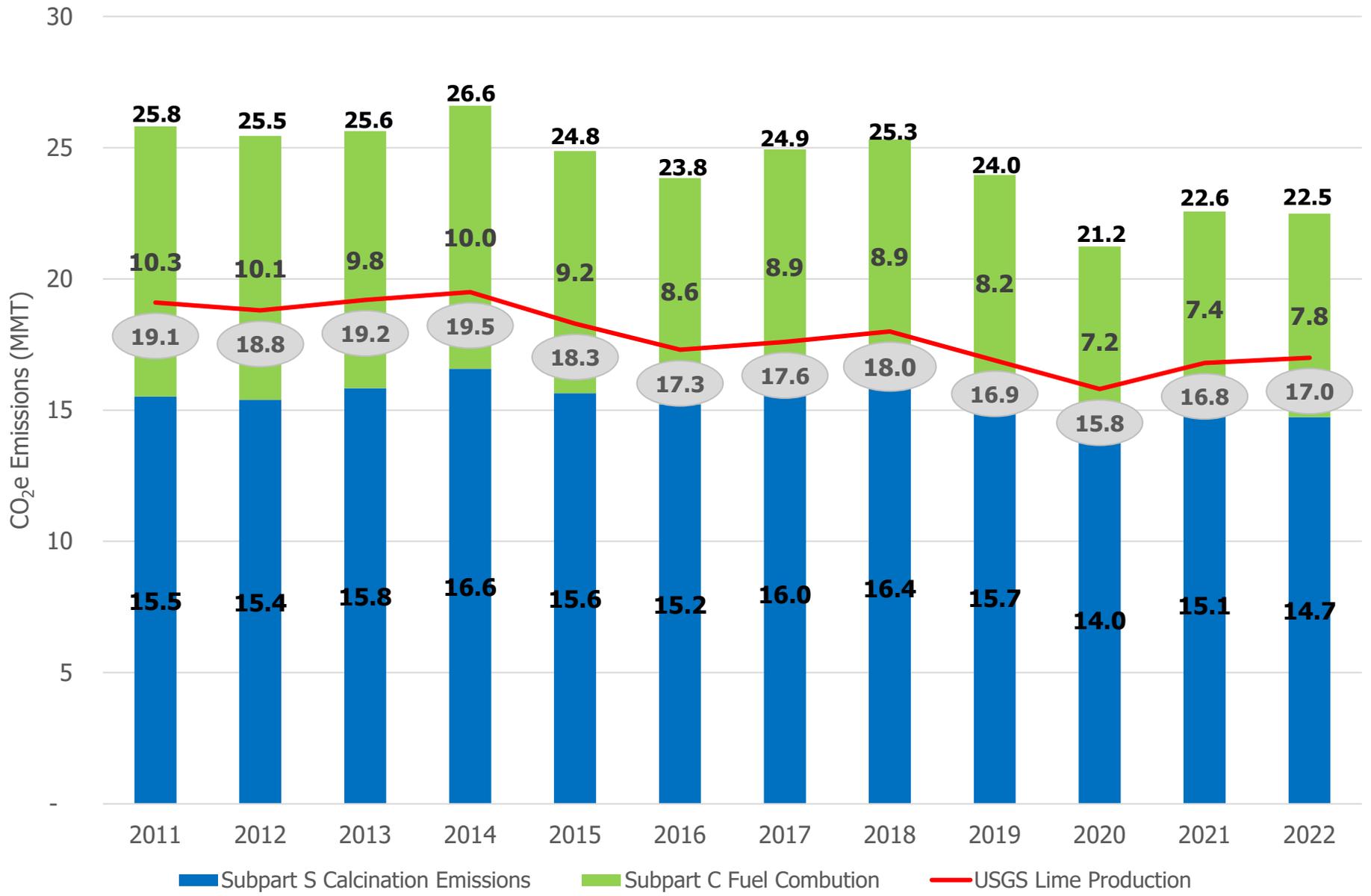
In Conclusion

- Facilities can expect to see increased attention from EPA
- As seen in prior years, it can be expected that agency funding limitations and public/private pushback will undermine some of these enforcement efforts
- The two initiatives with the most traction are the initiatives focusing on overburdened communities and PFAS contamination



2022 NLA Member GHG Summary (Draft)

U.S. EPA GHGRP Lime Manufacture CO₂e Emissions (MMT) Calcination Emissions and Fuel Combustion Emissions

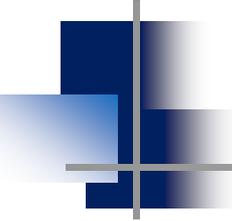


Oxide Content of Lime

	HICAL LIME		
	CaO	MgO	TOTAL
2019	94.3	1.7	96.0
2020	94.2	1.6	95.8
2021	93.8	1.4	95.1
2022	94.3	1.6	95.9
	DOLO LIME		
	CaO	MgO	TOTAL
2019	56.9	39.3	96.2
2020	57.1	39.5	96.6
2021	56.7	39.6	96.3
2022	57.0	39.3	96.2

Oxide Content of LKD

	HICAL LKD		
	CaO	MgO	TOTAL
2019	47.0	1.7	48.7
2020	42.0	1.8	43.8
2021	41.6	3.0	44.6
2022	44.2	1.5	45.6
	DOLO LKD		
	CaO	MgO	TOTAL
2019	24.9	18.2	43.1
2020	23.7	16.2	39.9
2021	28.2	16.3	44.5
2022	28.3	16.7	45.0



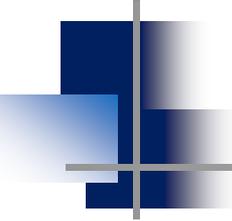
Various Benchmarks

- Energy Intensity Benchmark
 - Sum CO₂ (kiln fuel emissions, other combustion sources, CH₄, N₂O CO₂e)/lime produced
 - Lime only, and lime & LKD
- Calcination Intensity Benchmark
 - Sum CO₂ (lime production, calcined by products & wastes)/lime produced + LKD sold

GHG Benchmarks

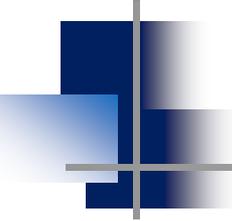
	2011	2019	2020	2021	2022
EPA Calcination Emissions Intensity	0.80	0.80	0.79	0.79	0.78
EPA Energy-Related Intensity					
Lime & LKD	0.60	0.57	0.57	0.57	0.56
Lime only	0.64	0.62	0.62	0.61	0.60

Attorney-Client Privilege/Joint
Defense Privilege



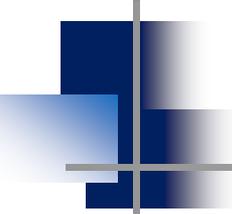
Total EPA GHG Benchmarks

	All Lime			
	2019	2020	2021	2022
Lime Only	1.39	1.38	1.39	1.38
Lime + LKD	1.36	1.36	1.36	1.35



Total EPA GHG Benchmarks

	Hi-Cal			
	2019	2020	2021	2022
Lime Only	1.32	1.31	1.31	1.30
Lime + LKD	1.31	1.30	1.30	1.29

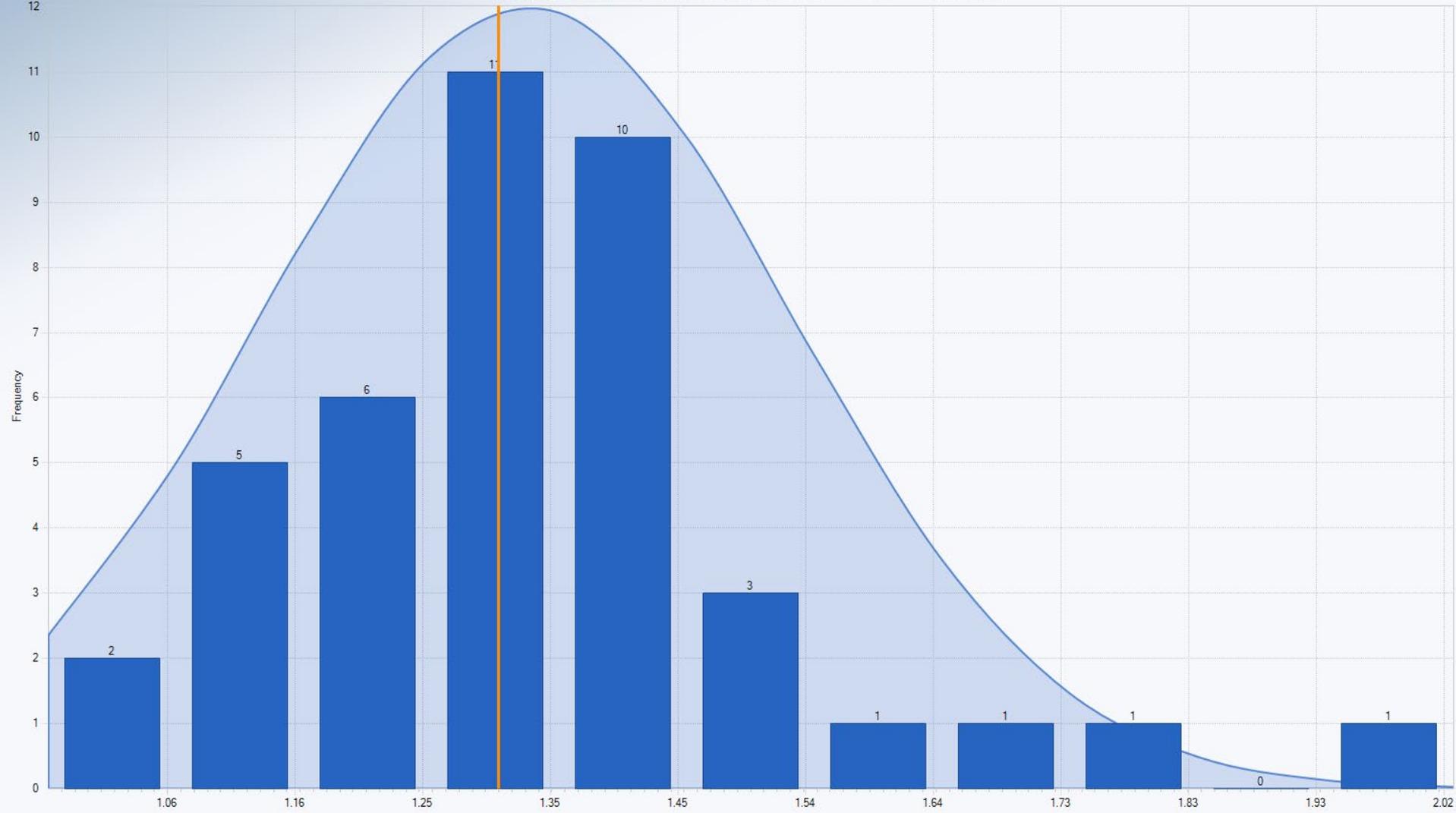


Total EPA GHG Benchmarks

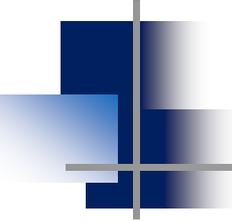
	Dolo			
	2019	2020	2021	2022
Lime Only	1.54	1.54	1.53	a
Lime + LKD	1.44	1.43	1.45	a

a. Not yet calculated

Histogram for Total GHG Intensity - Lime + LKD Sold



2022 Total GHG Intensity – Lime + LKD Sold



Questions?
