

Cost of Carbon: Sustainability v2.0

March 2023

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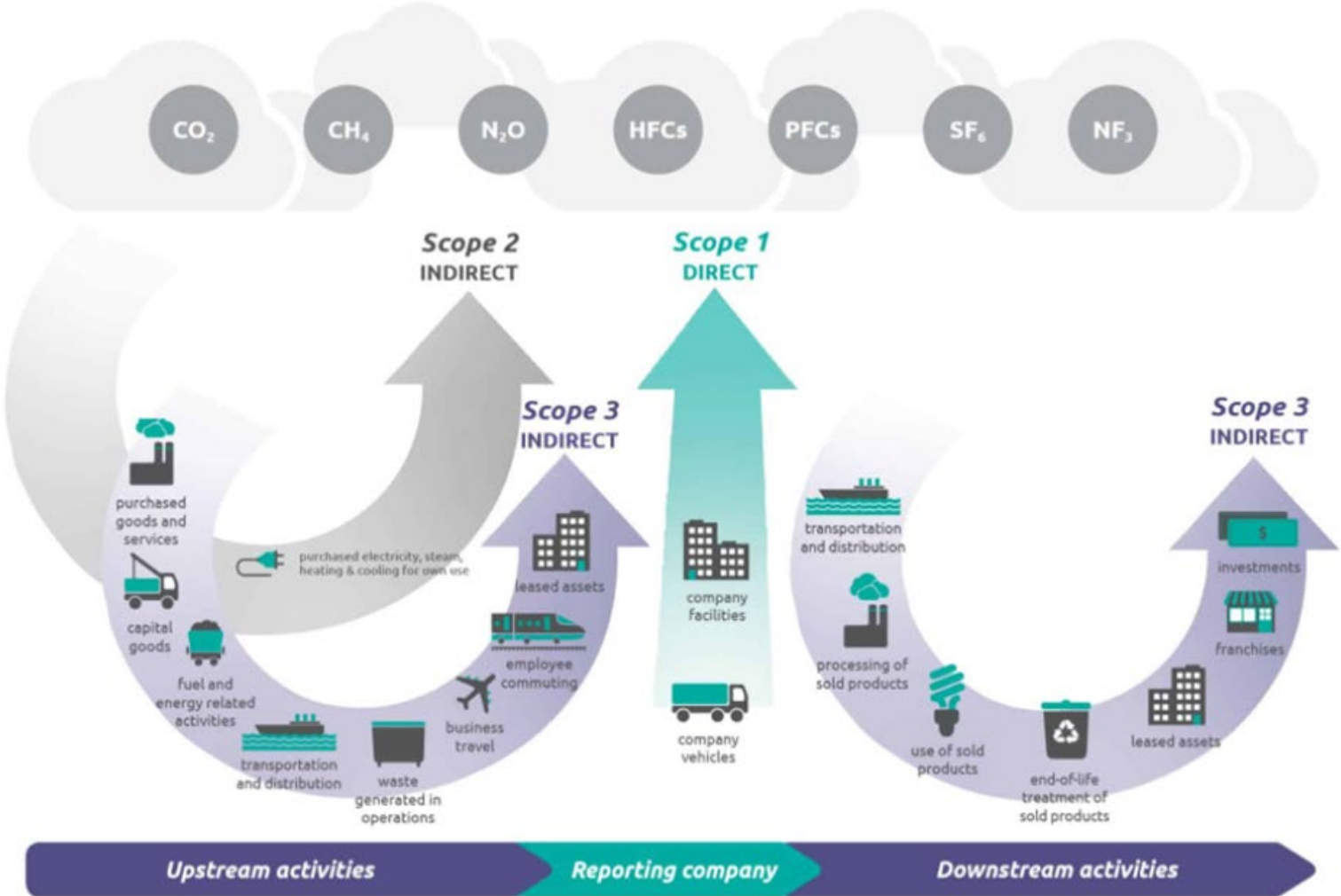
Agenda

- **Summary of Carbon Footprint of Benchmarks & ESG ETFs**
 - **Scope 1&2**
 - **Total Emissions**
- **Digital Carbon Innovation**
- **Cost of the Benchmarks vs Carbon Pricing Benchmarks**
- **Range of Digital Carbon Prices for Net Zero Portfolios**

Net Zero Models – How we combine our ESG Signals and Digital Carbon to move sustainable investing forward and systematically net zero investment portfolios

- **Appendix: Benchmark Emissions Details Scopes 1 -3**

Background on Emissions



Source: GHG Protocol

Benchmark ETFs Emissions

Carbon intensity of market benchmarks

It is clear that international indices (EFA & ACWI) are much more carbon intense than US indices

Index composition drives more of these geographical differences

Benchmarks are also a good proxy of the footprint for portfolios of ETFs

Scope 1 & 2 Emissions Intensity
(tCO₂e/\$MM Market Cap)

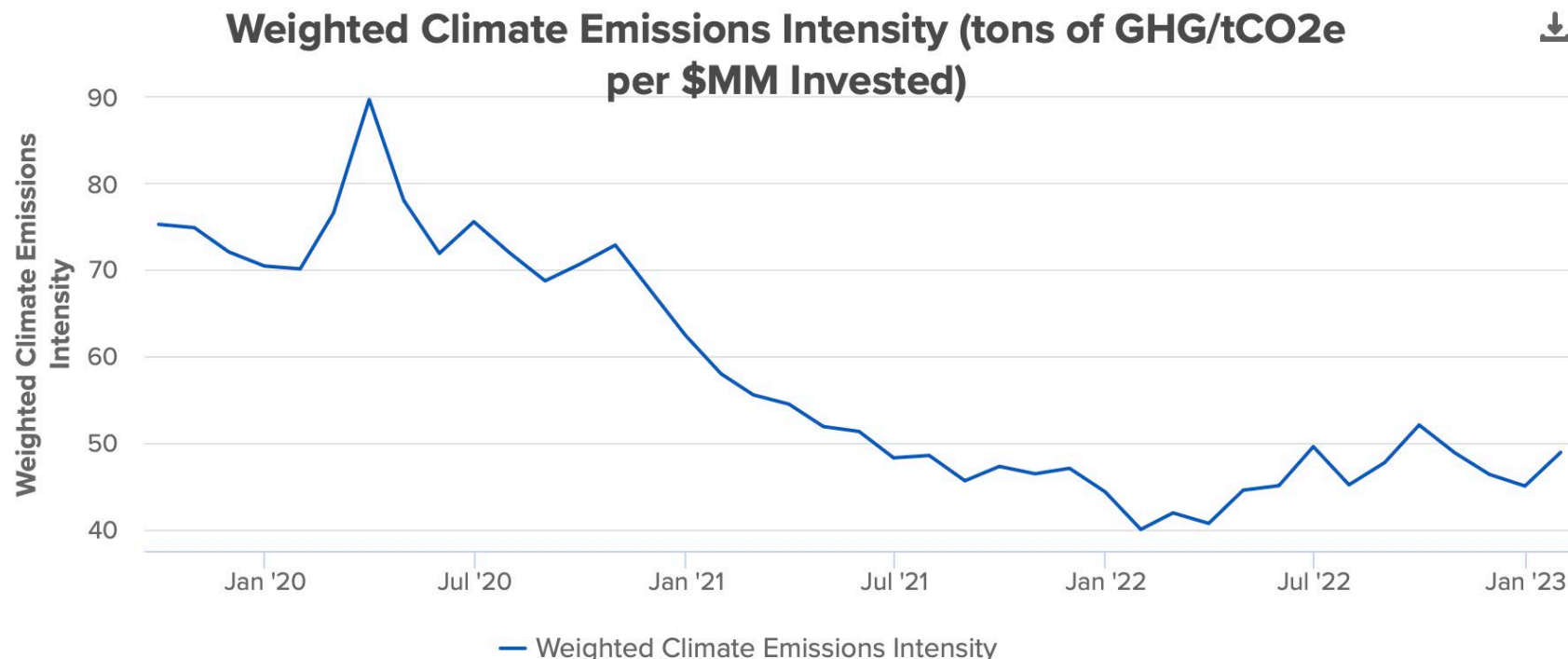


US Large Cap Scope 1&2 Emissions

Russell 1000 Index since 2000 shows a noticeable decline since 2020

Most of decline in carbon intensity is a result of market capitalization favoring

Carbon lite sectors like Tech (27%) and Communications (8%) over Energy (4.9%)



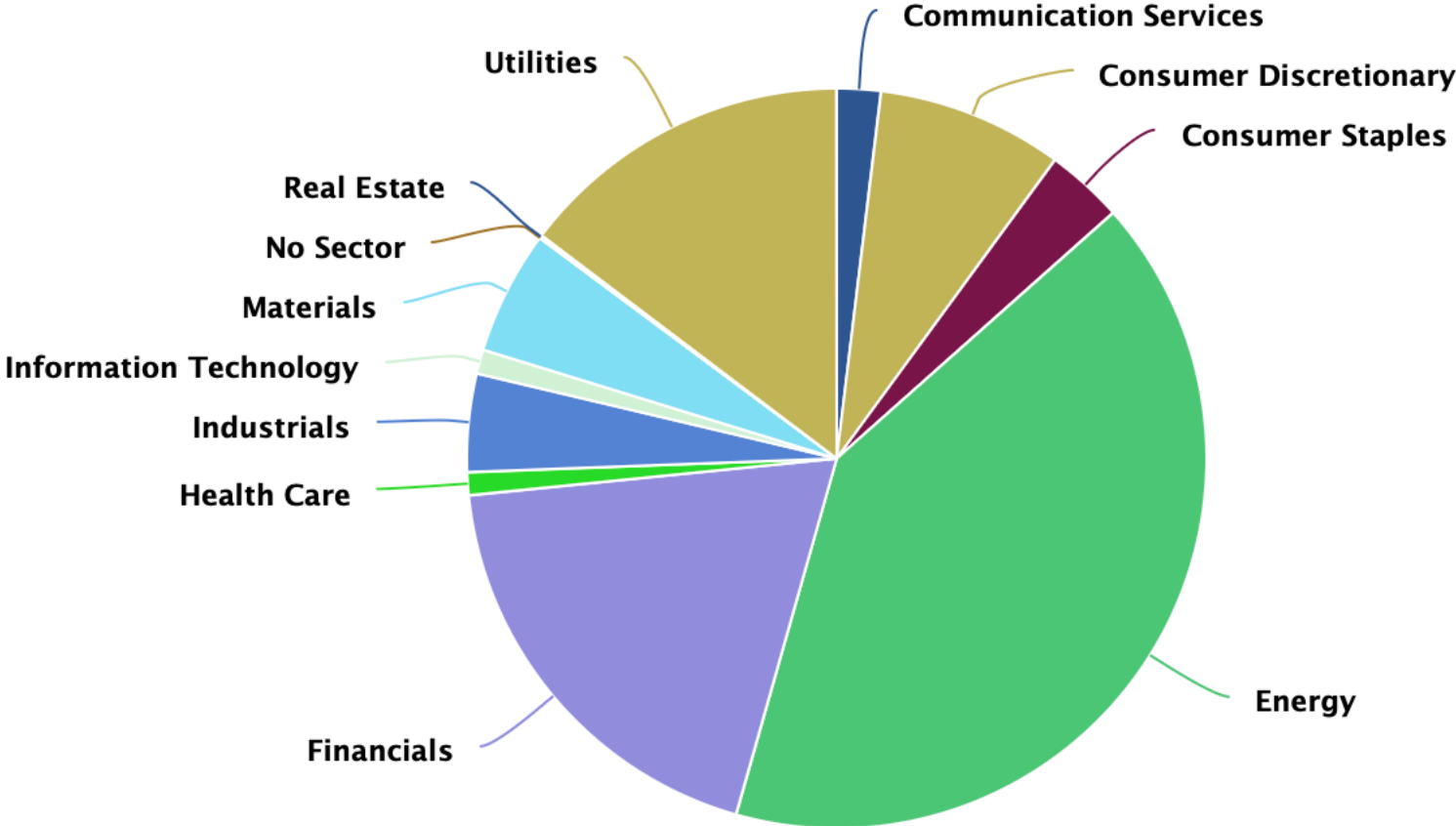
US Large Cap Emissions Allocation

Percent Total Emissions Per Sector

Allocation of Emissions by sector as a percentage of total emissions

Shows how Energy, Utilities, Financials and Materials are the majority of emissions

Energy as a % allocation of the IWB has doubled since 2020

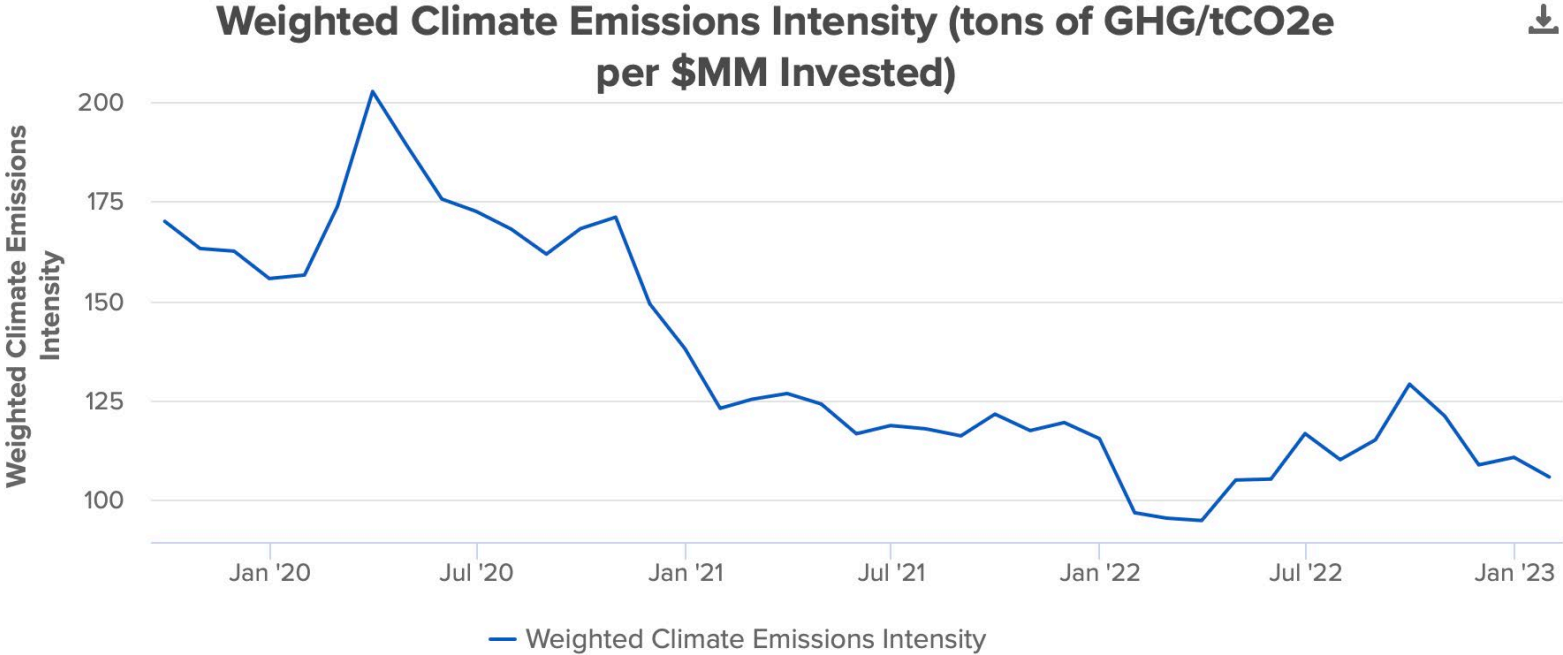


Intl Developed Scope 1&2 Emissions

An index of International developed companies has seen a small decline since 2020

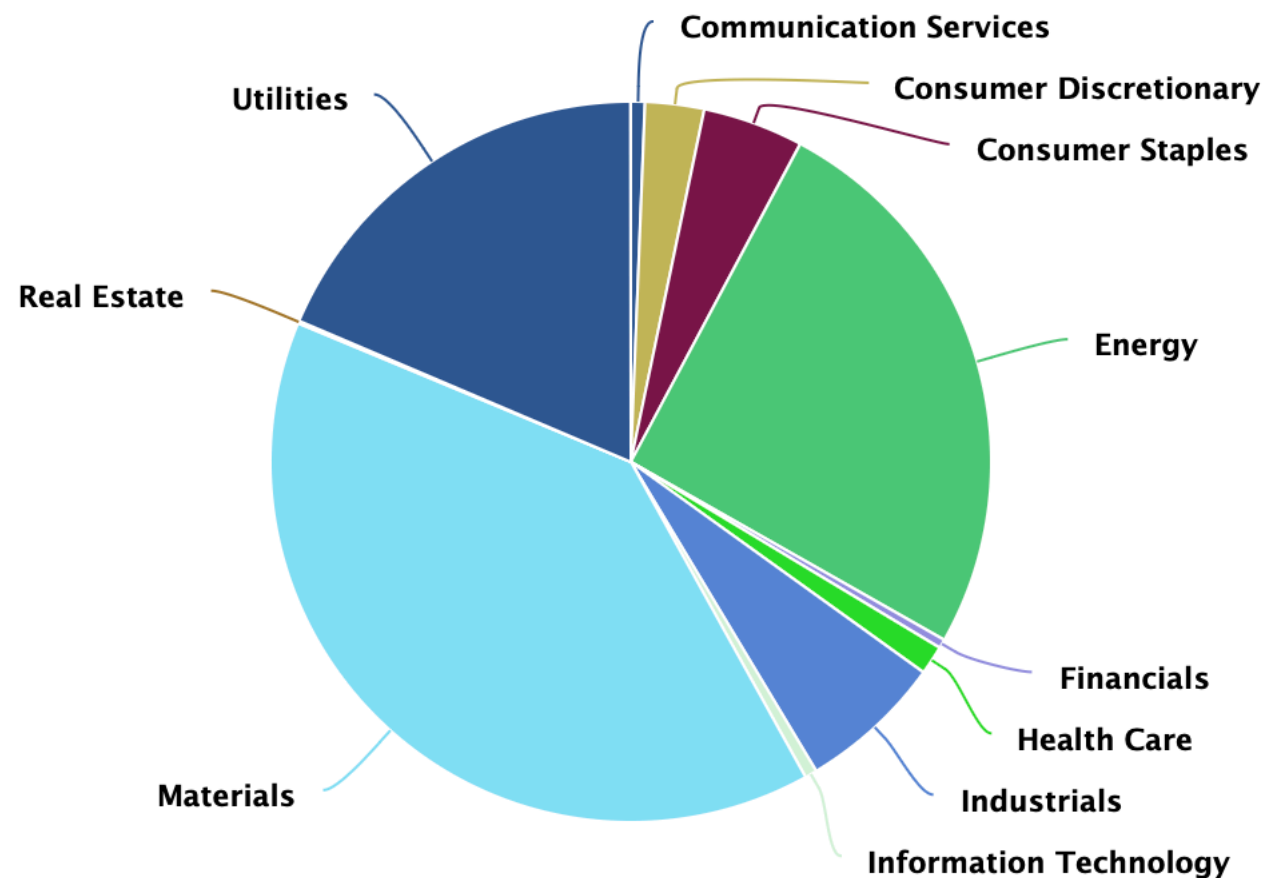
Materials sector at 8% of the index generates nearly 40% of the emissions

Carbon lite sectors like Tech (8.5%) and Communications (5%) over Energy (4%) and Industrials (15%)



Intl Developed Emissions Allocation

Percent Total Emissions Per Sector



Allocation of Emissions by sector as a percentage of total emissions

Shows how Energy, Utilities, and Materials are the majority of emissions

How can portfolio emissions be efficiently offset? How much does it cost?

There is a better way to address this cost and engage investors

Define Carbon Pricing Benchmarks

Carbon Market	Description	Price	YTD	Additional Expense
European Carbon Credit Market (ETS)	A Futures contract for one EUA (European Union Allowance), permitting one ton of CO ₂ or CO ₂ equivalent greenhouse gas emission.	EUR99.54/tCO₂e	24.43%	Regulatory Credits with additional brokerage expense to purchase
California Carbon Credit Market (CARB)	ETCCA Futures – physically delivered greenhouse gas emissions allowance for the California Carbon Allowance (CCA) program.	\$28.99/tCO₂e	0.24%	Regulatory Credits with additional brokerage expense to purchase
Nature Based Carbon Offset (NBO)	Nature-Based offset projects from the traditional voluntary carbon market.	\$3.85/tCO₂e	-15.34%	Voluntary Credits that require a broker to execute purchase OTC
Digital Carbon	Voluntary Carbon credits that have been bridged to the blockchain mostly on the Polygon Network	\$2.14/tCO₂e	65%	Voluntary Credits that include systematic charges in the price

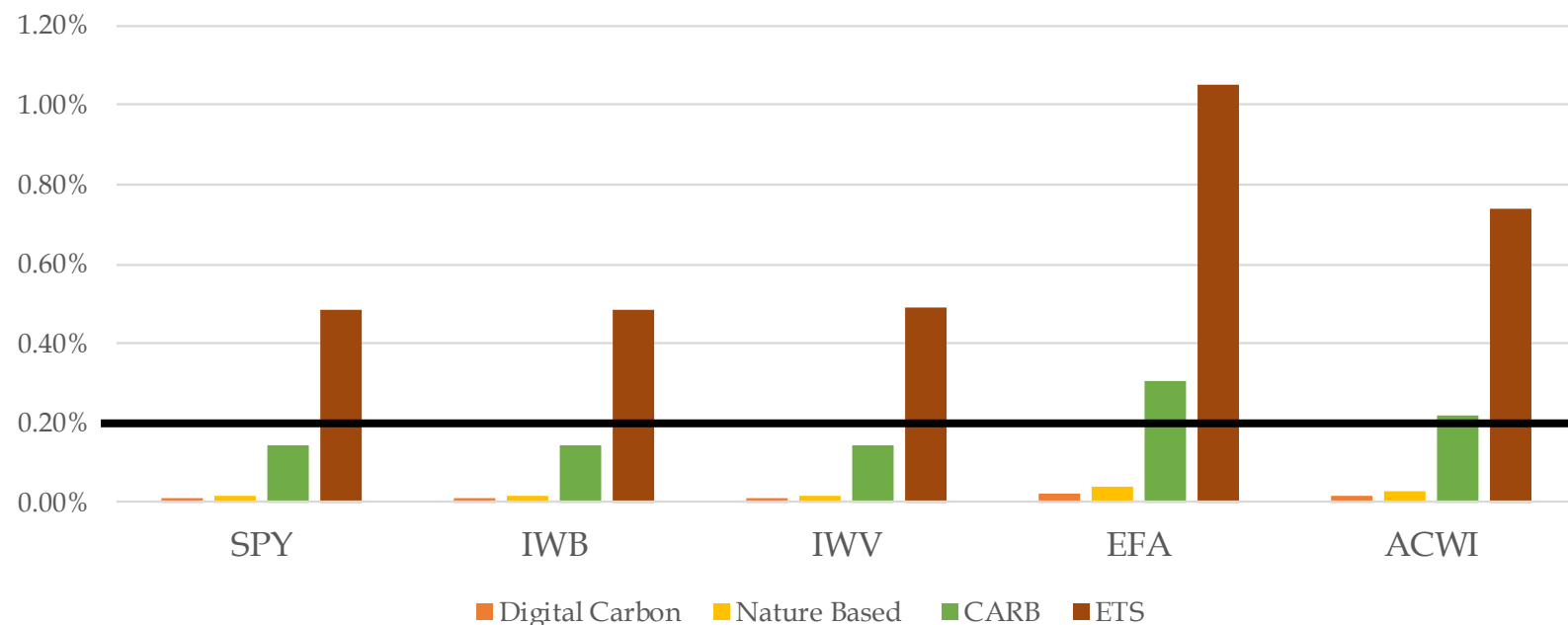
Cost of Scope 1&2 Emissions – Net Zero

Cost per \$1mm Invested to Offset Scope 1&2 Emissions
20bps Threshold Cost

Comparison of the Market Benchmarks' cost of emissions

Regulatory Pricing like ETS & CARB are not cost feasible to use for International Indices

Voluntary Carbon Credits can offset all market indices for under 20bps annually



Benchmark	Digital Carbon	Nature Based	CARB	ETS
SPY	0.01%	0.02%	0.14%	0.48%
IWB	0.01%	0.02%	0.14%	0.49%
IWV	0.01%	0.02%	0.14%	0.49%
EFA	0.02%	0.04%	0.31%	1.05%
ACWI	0.02%	0.03%	0.22%	0.74%

Cost of Total Emissions – Net Zero

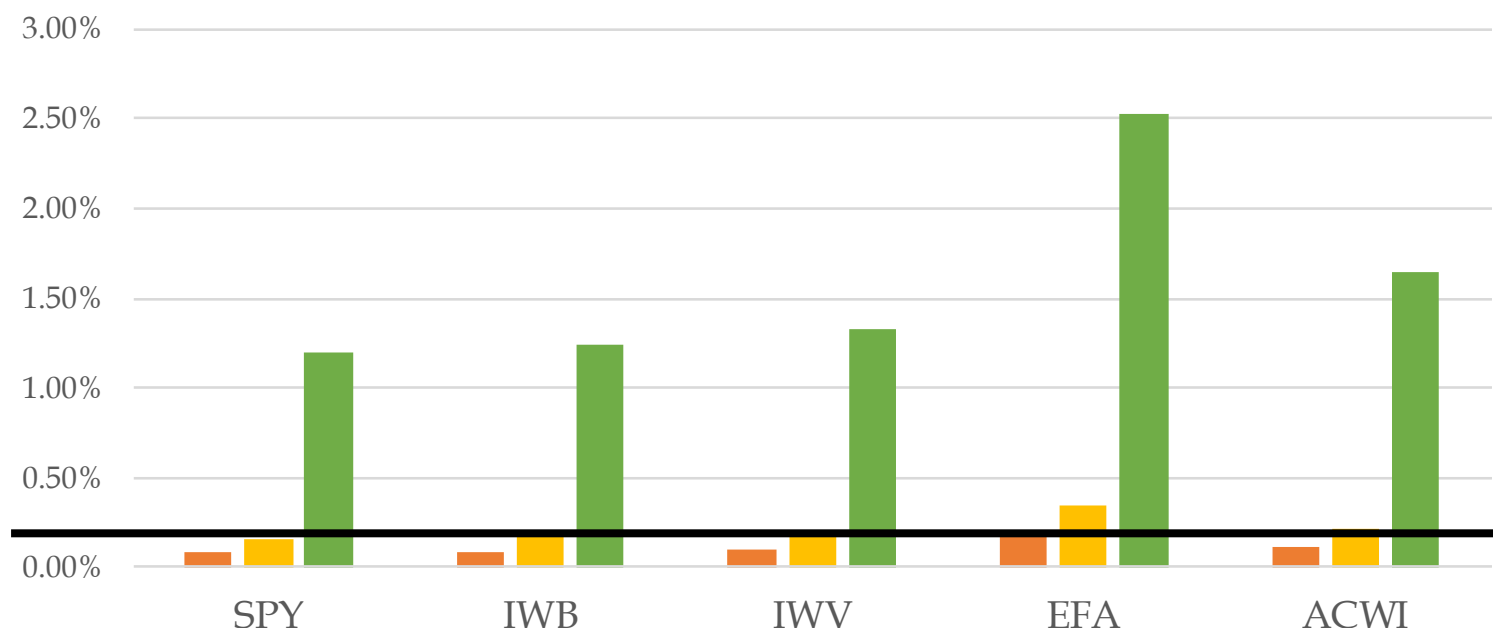
Total emissions costs of Scopes 1,2 and 3 for all market indices

Regulatory pricing like CARB are not cost feasible for total emissions and gives a ~\$20 handle limit on VCM pricing

Voluntary Carbon Credits can offset all market US indices for all of their emissions

Only Digital Carbon is feasible for all benchmarks

Cost per \$1mm Invested to Offset Total Emissions
20bps Threshold Cost



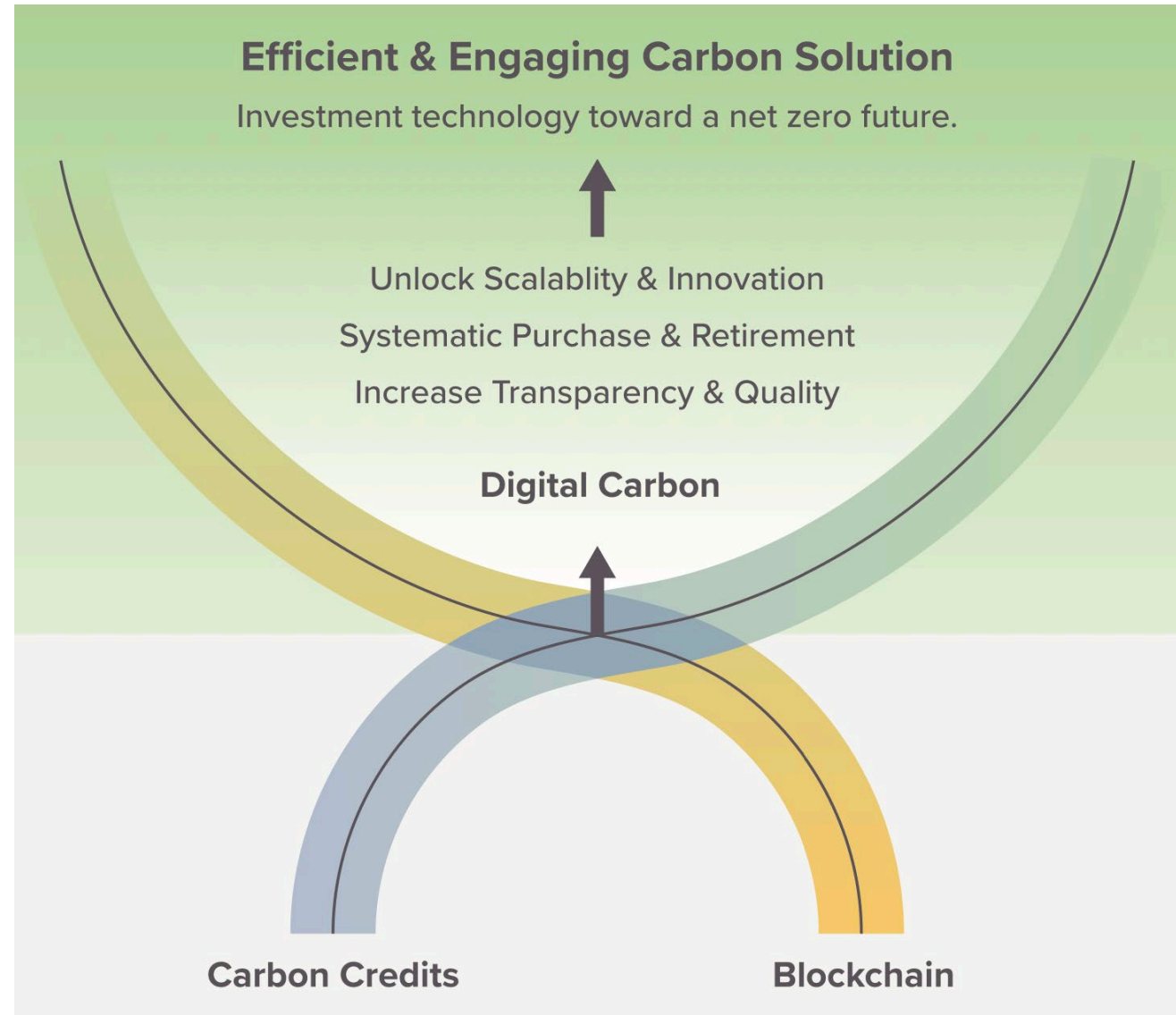
Benchmark	Digital Carbon	Nature Based	CARB
SPY	0.09%	0.16%	1.19%
IWB	0.09%	0.17%	1.23%
IWV	0.10%	0.18%	1.32%
EFA	0.19%	0.34%	2.52%
ACWI	0.12%	0.22%	1.65%

Digital Carbon Evolution

All the ingredients for systematic offsetting of investment portfolios

**Transparent, Scalable
High Speed, and Efficient Pricing**

An action step that helps drive engagement and differentiation



Digital Carbon Pricing Dashboard

Base Carbon Tonne (BCT)	Nature Carbon Tonne (NCT)	Moss Carbon Credit (MCO2)
Price \$1.65	Price \$2.08	Price \$1.90
Selective Cost ⓘ \$2.07	Selective Cost ⓘ \$2.29	Selective Cost ⓘ NA
Current Supply 18,602,733	Current Supply 1,599,828	Current Supply 2,814,800
Universal Basic Offset (UBO)	Nature Based Offset (NBO)	
Price \$1.95	Price \$2.41	
Selective Cost ⓘ \$2.00	Selective Cost ⓘ \$2.46	
Current Supply 108,294	Current Supply 33,304	

<https://carbon.klimadao.finance/carbon-pricing>

Commodified carbon pools include multiple carbon projects that meet specific criteria, such as project vintage or technology type.

Digital Carbon Pricing History



<https://carbon.klimadao.finance/carbon-pricing>

Pricing Thresholds for Scope 1&2 - Net Zero

Cost per \$1mm Invested to Offset Scope 1&2 Emissions
20bps Threshold Cost

Range of Costs for offsetting with digital carbon for Scopes 1&2

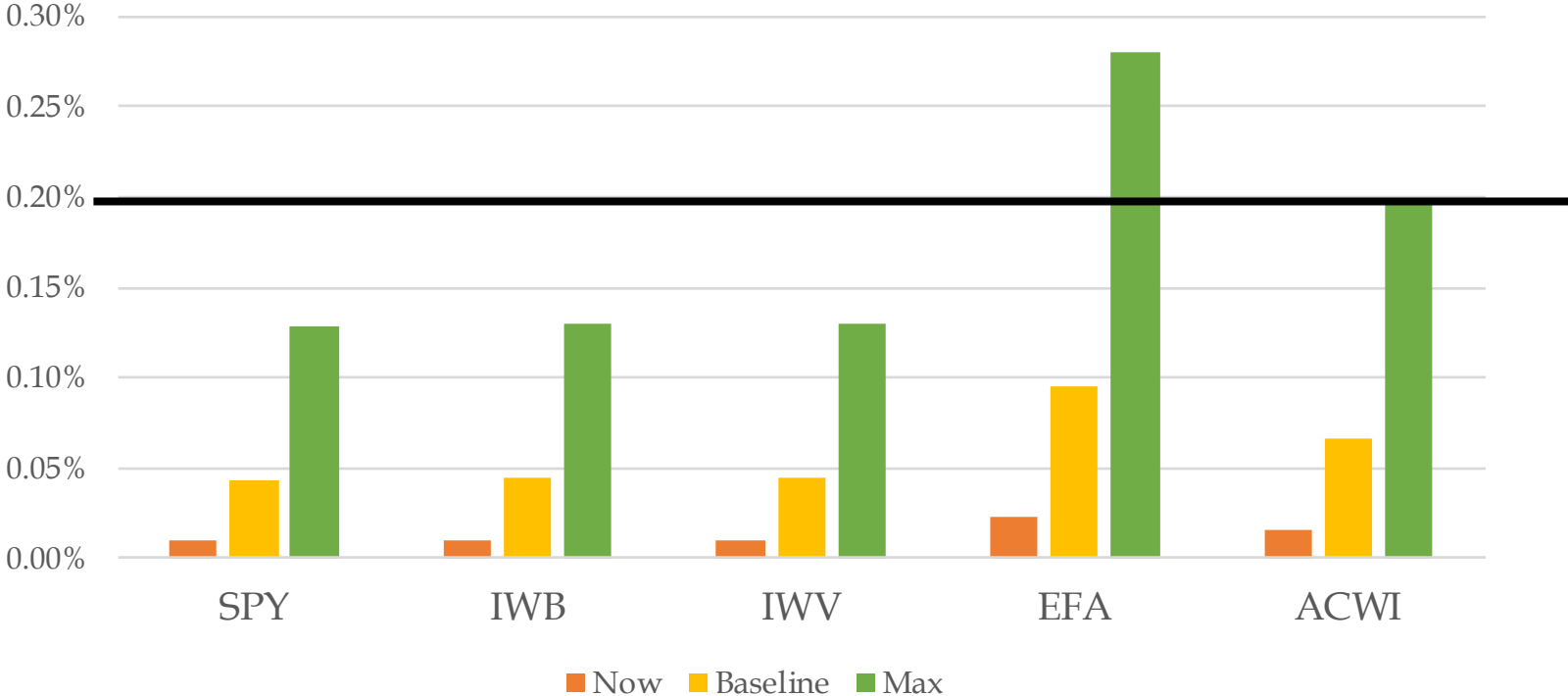
Now = \$2.14

Baseline = \$9

Max Price = \$26.5

Max Price offsets Global and US Portfolios

Scope 1&2 will be the main offset focus



Benchmark	Now	Baseline	Max
SPY	0.01%	0.04%	0.13%
IWB	0.01%	0.04%	0.13%
IWV	0.01%	0.04%	0.13%
EFA	0.02%	0.10%	0.28%
ACWI	0.02%	0.07%	0.20%

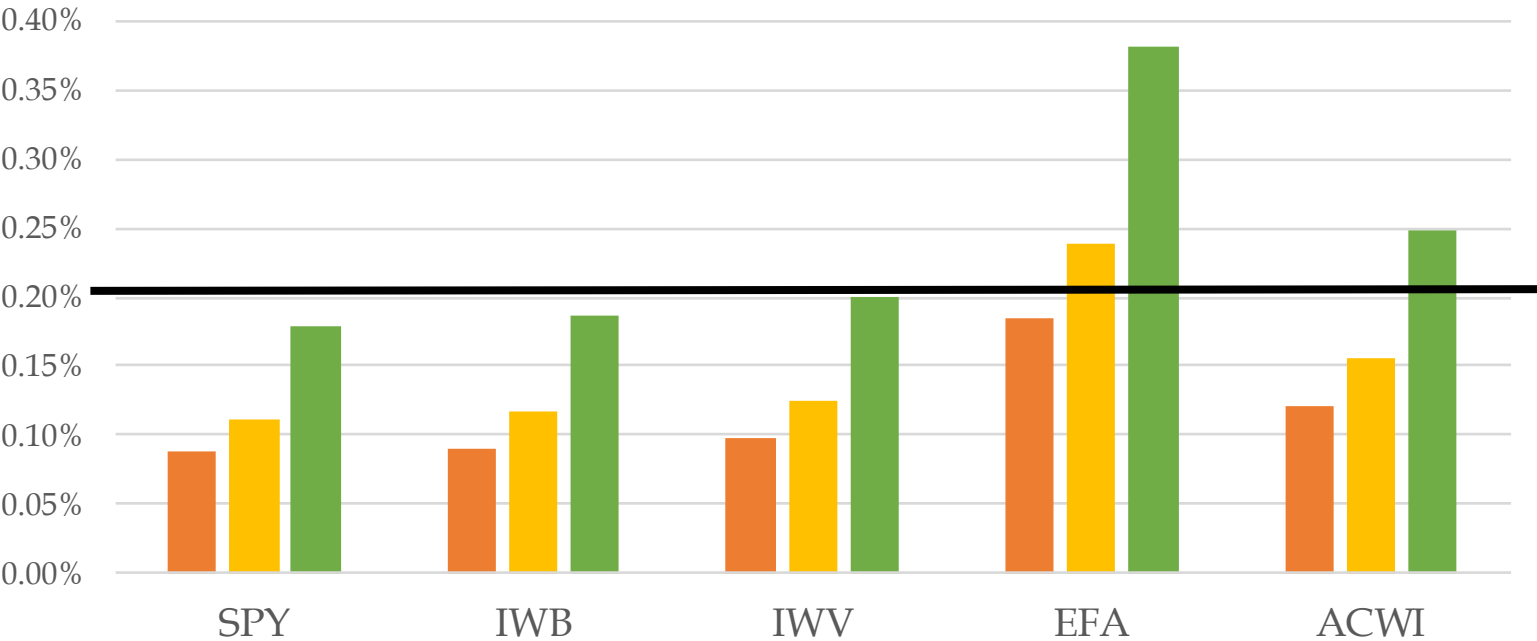
Thresholds Total Emissions - Net Zero

Cost per \$1mm Invested to Offset Total Emissions
20bps Threshold Cost

Range of Costs for offsetting with digital carbon for Total Emissions

Now = \$2.14
Baseline = \$2.75
Max Price = \$4.40

Max Price offsets all US Portfolios



<u>Benchmark</u>	Now	Baseline	Max
SPY	0.09%	0.11%	0.18%
IWB	0.09%	0.12%	0.19%
IWV	0.10%	0.12%	0.20%
EFA	0.19%	0.24%	0.38%
ACWI	0.12%	0.16%	0.25%

Net zero investing is achievable.

We have the solution & path forward

New Category of Asset Management

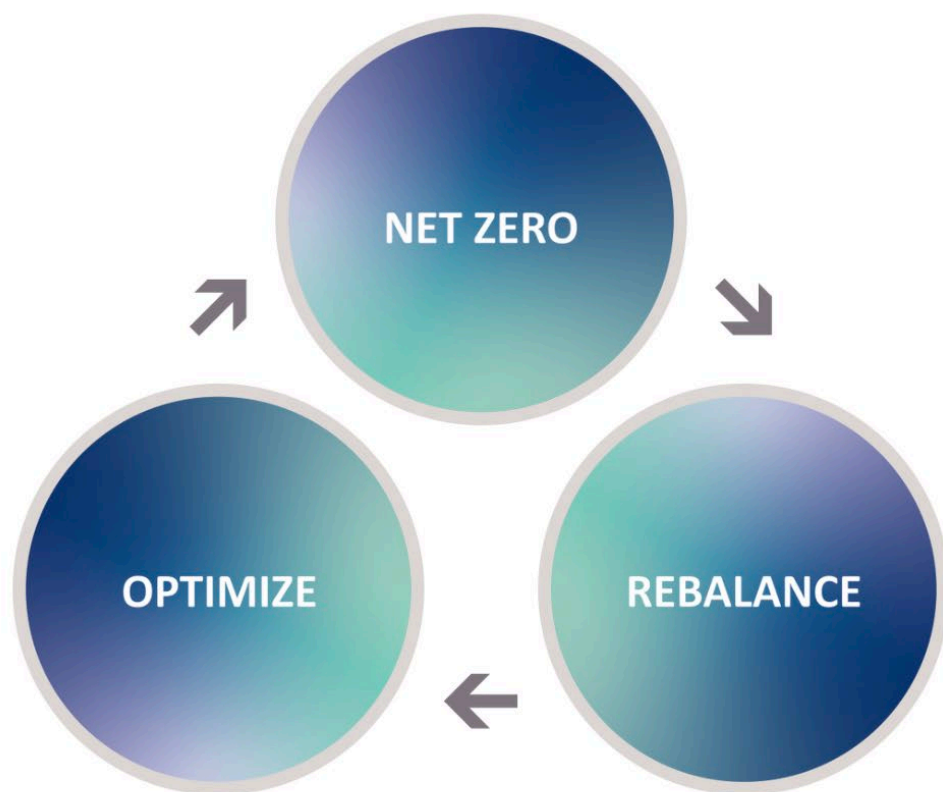
Net Zero

The answer to ESG's shortfalls: Performance & Greenwashing



Net Zero Process

Fixing the issues with sustainable investing



Optimize

Signals and data to grow your portfolio with reduced emissions.

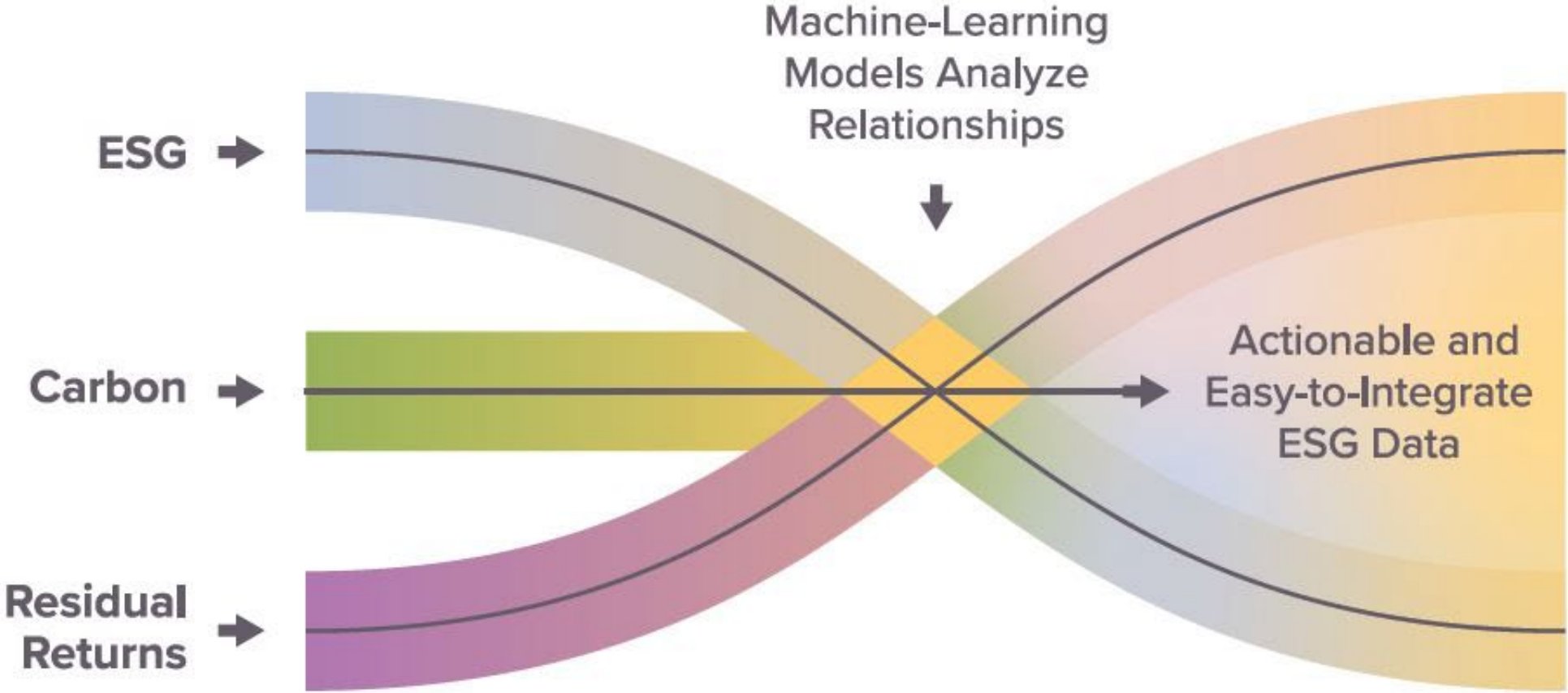
Net Zero

Innovations and partnerships in the digital carbon space create an efficient and engaging solution.

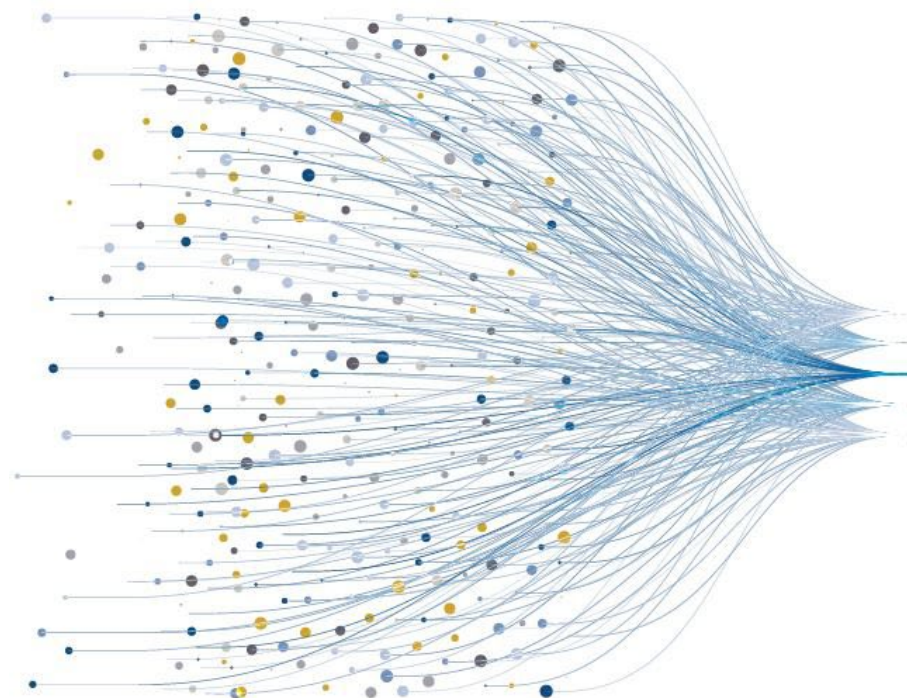
Rebalance

Quarterly systematic process focuses on achieving your capital goals while systematically offsetting carbon.

ESG & Carbon Signal Process



Our Signals Lead to Better Outcomes



Aggregate Rankings

An unbiased view of ESG and carbon rankings, at the individual stock and fund levels, derived from a comprehensive aggregation of numerous ESG datasets.

Performance Rankings

Performance-focused rankings of stocks and funds deduced by uncovering the ESG and carbon factors most correlated with positive historical returns.

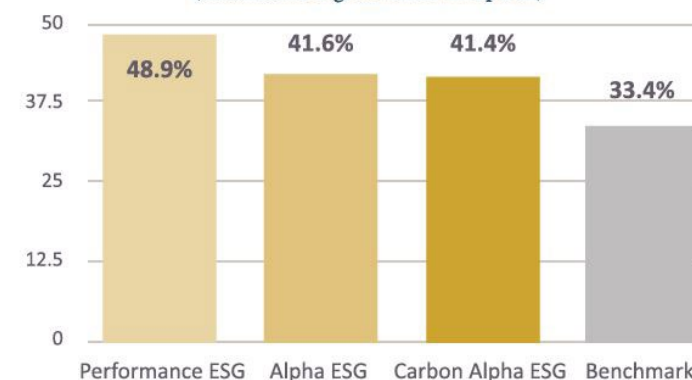
Rankings Forecast

12-month forecasts of our Aggregate Rankings, which include a top-level rank as well as rankings for each underlying E-S-G component.

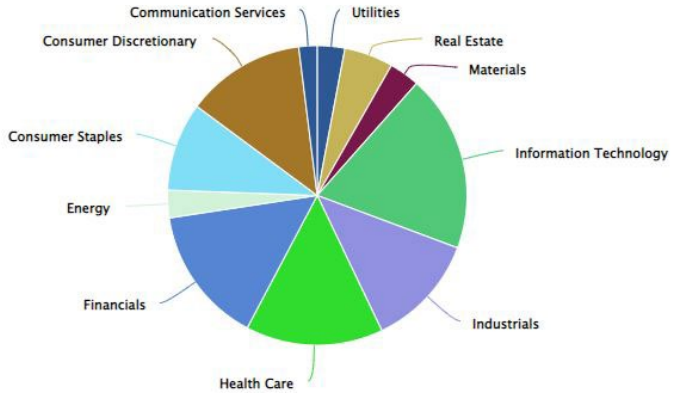
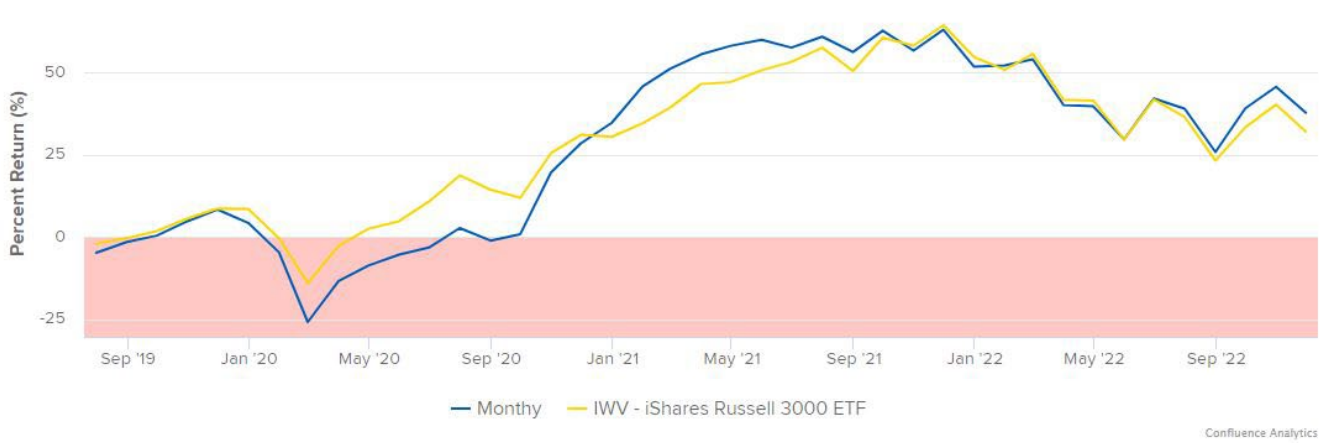
Alpha Forecast

12-month forward alpha forecasts at both the stock and fund levels, based on key ESG and carbon factors shown to be able to predict alpha historically.

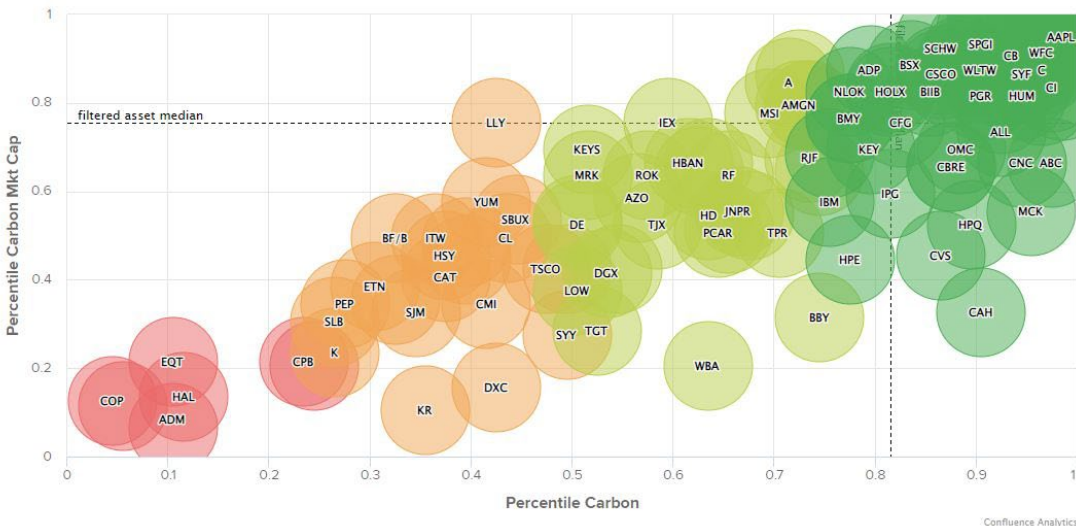
US Large Caps
(Confluence Signals Since Inception)



US Large Cap – Net Zero



Metric	Monthly Rebalance	Benchmark
1 Month Percent Return	-5.42 %	-5.87 %



Net Zero – US Large Cap

Outperformed in 2022 -14% vs -19% with 80% decline in carbon footprint

ESG Performance & Alpha Signals plus are the major factors driving selection

Net Zero cost 12bps

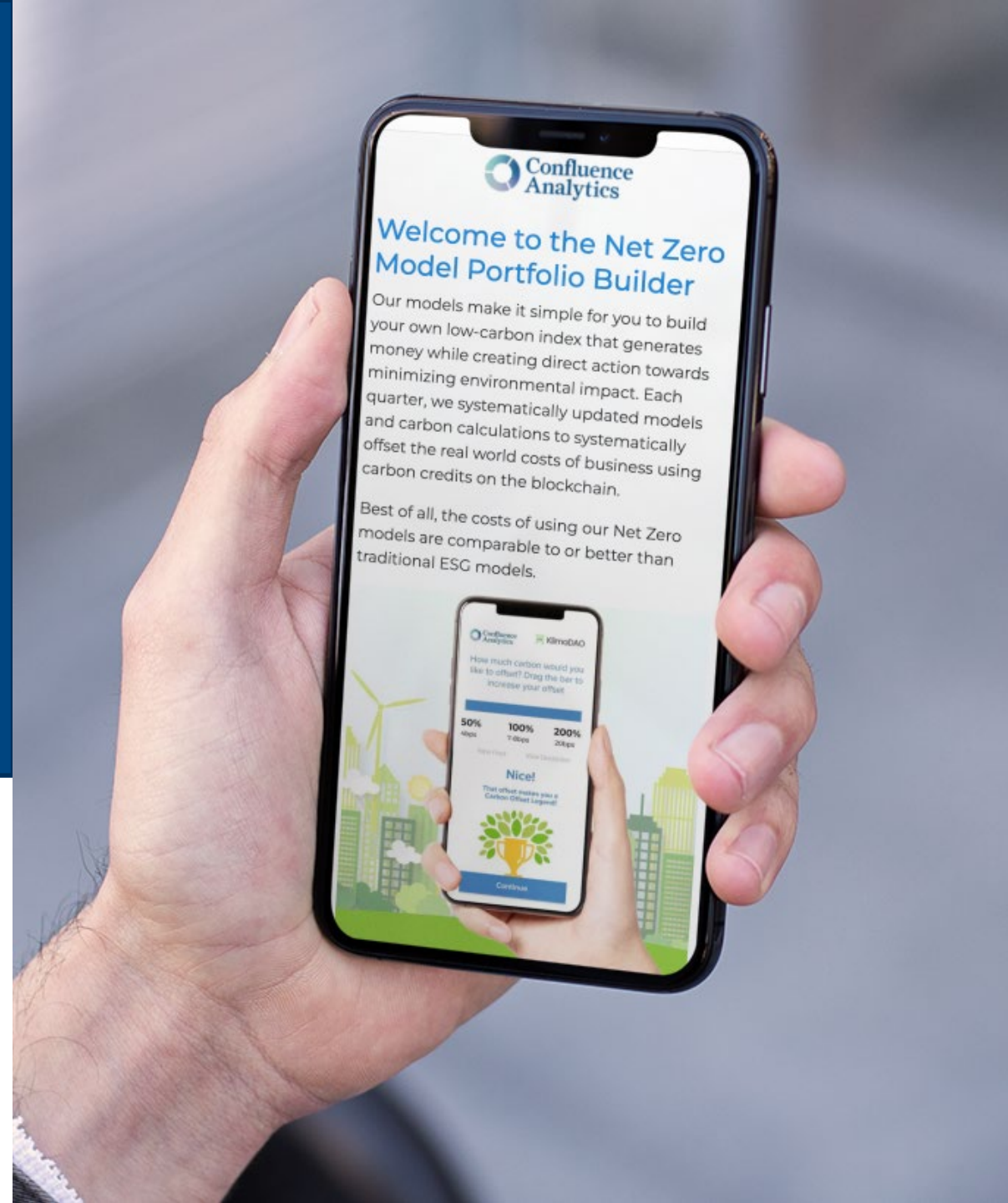
We've developed Net Zero Model Portfolios for Stocks & ETFs.

Check out a demo of the Net Zero Model Portfolio

[GET THE DEMO](#)



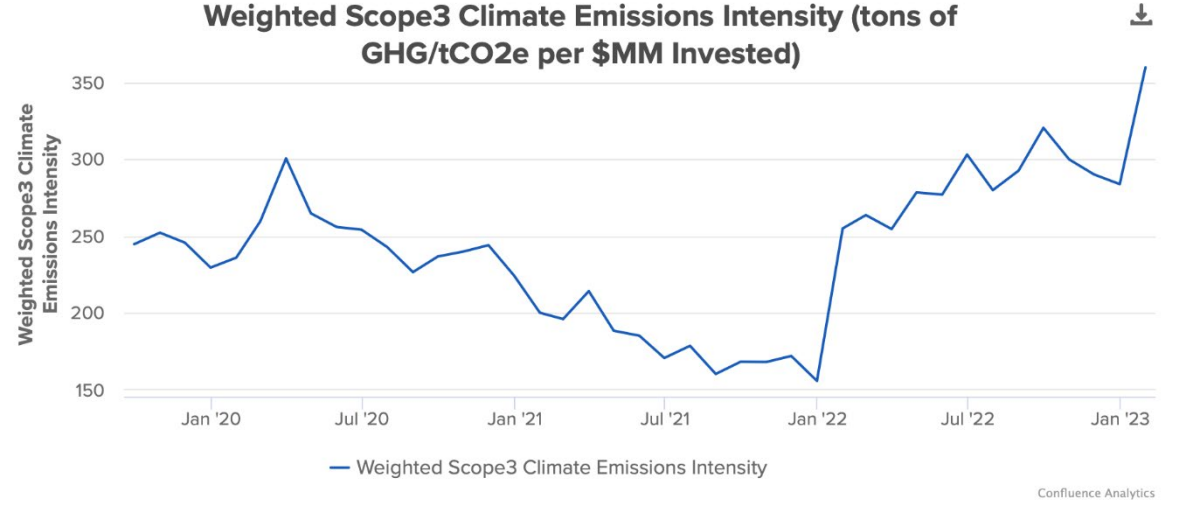
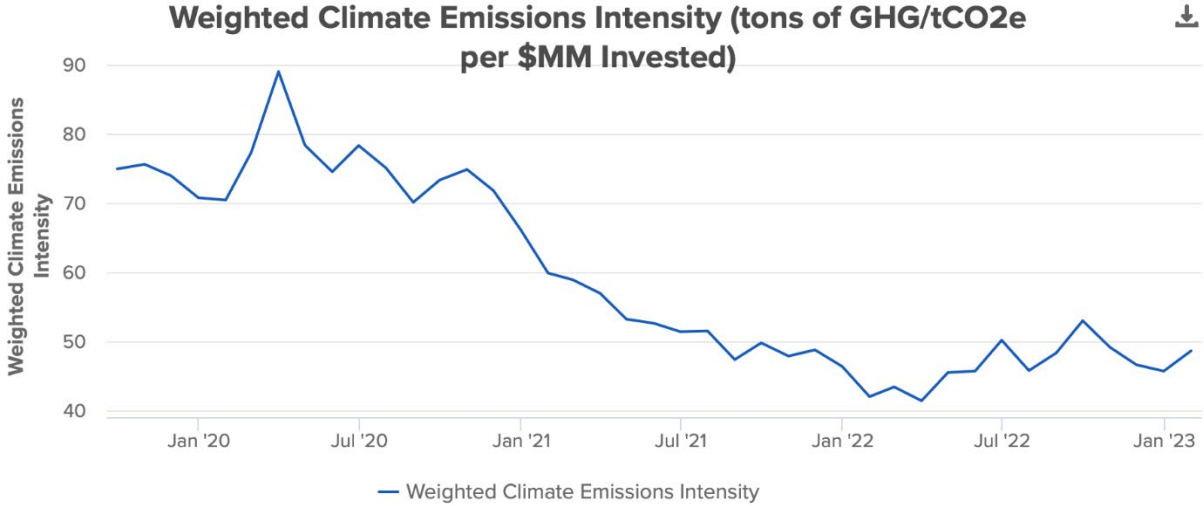
www.confluenceanalytics.com



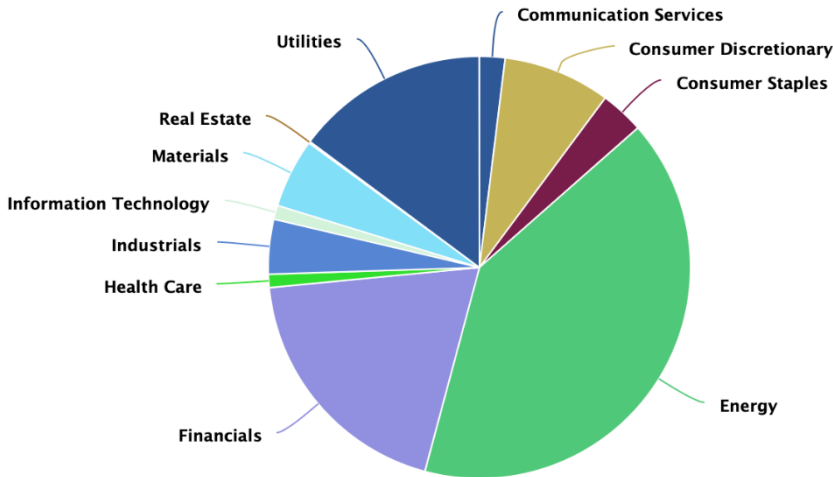
Benchmark ETF Emissions



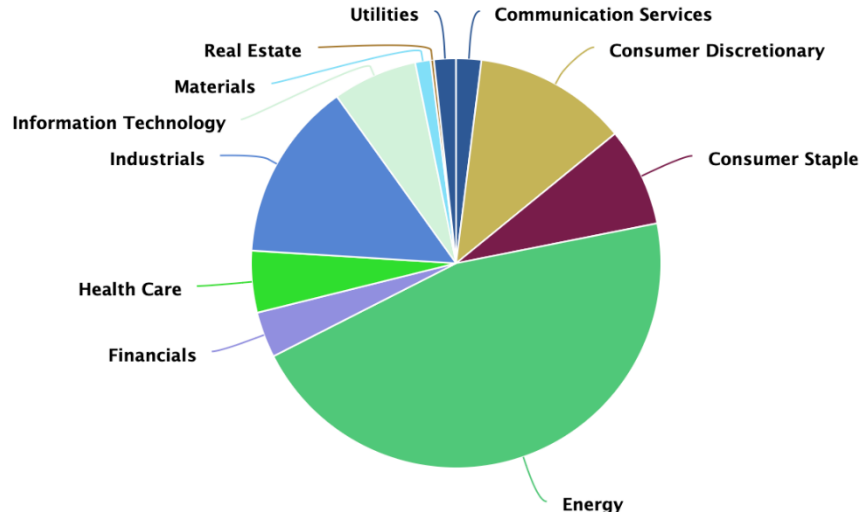
SPY ETF Emissions Details



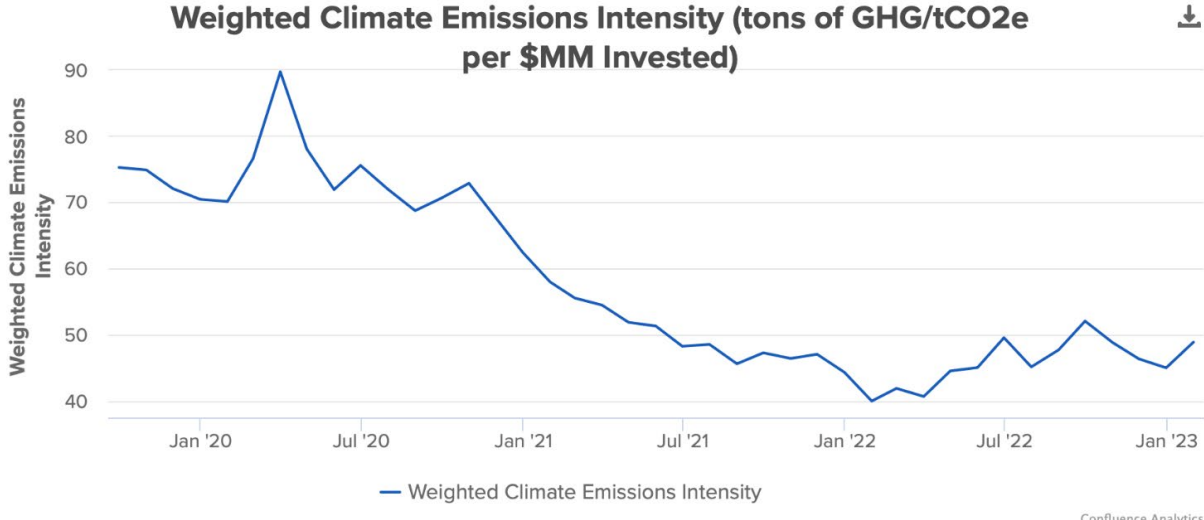
Percent Total Emissions Per Sector



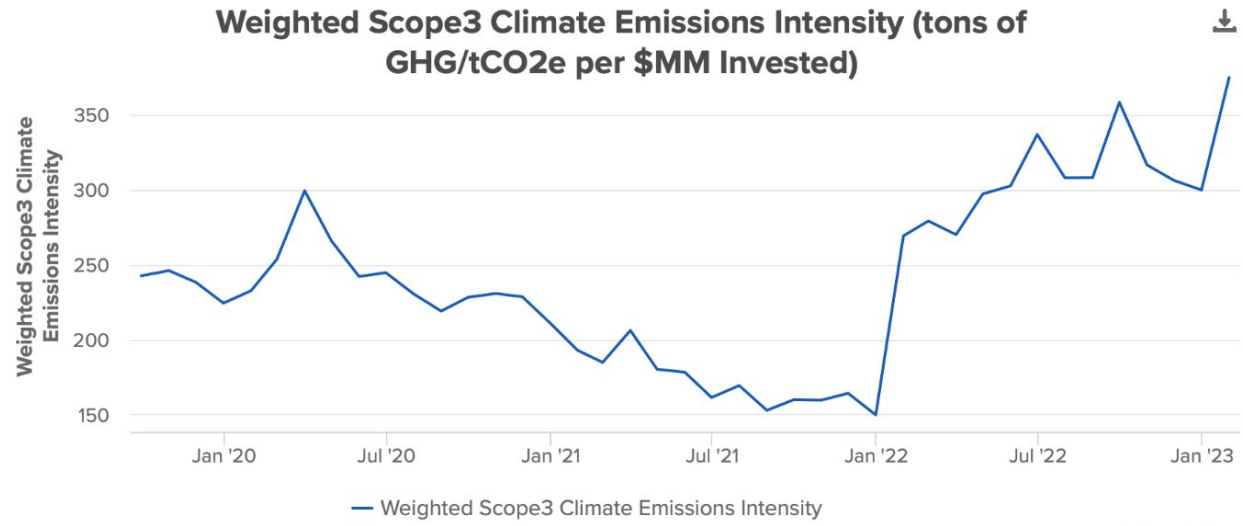
Percent Scope 3 Emissions Per Sector



IWB ETF Emissions Details

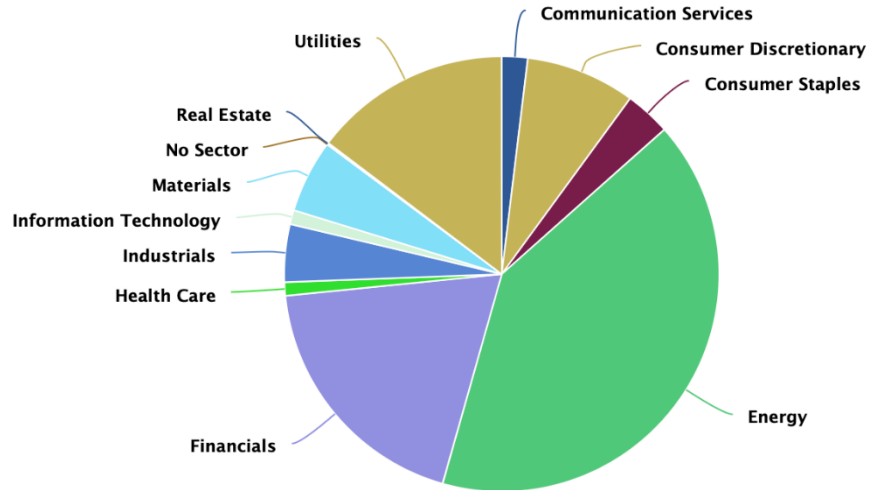


Confluence Analytics

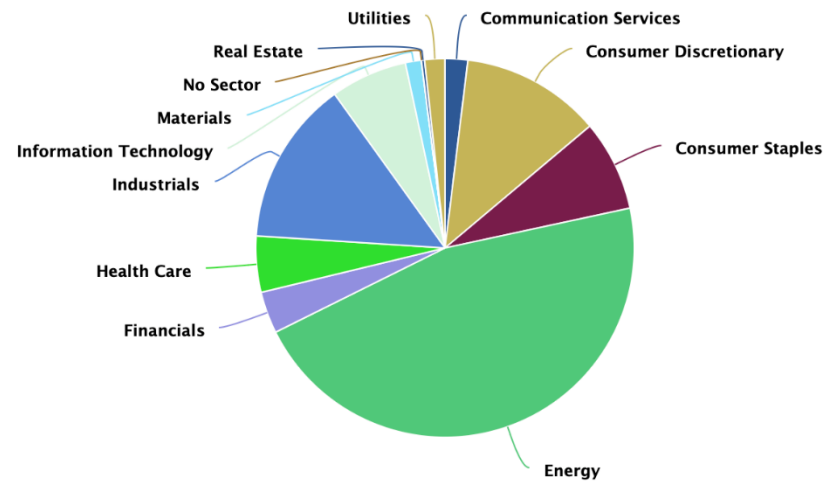


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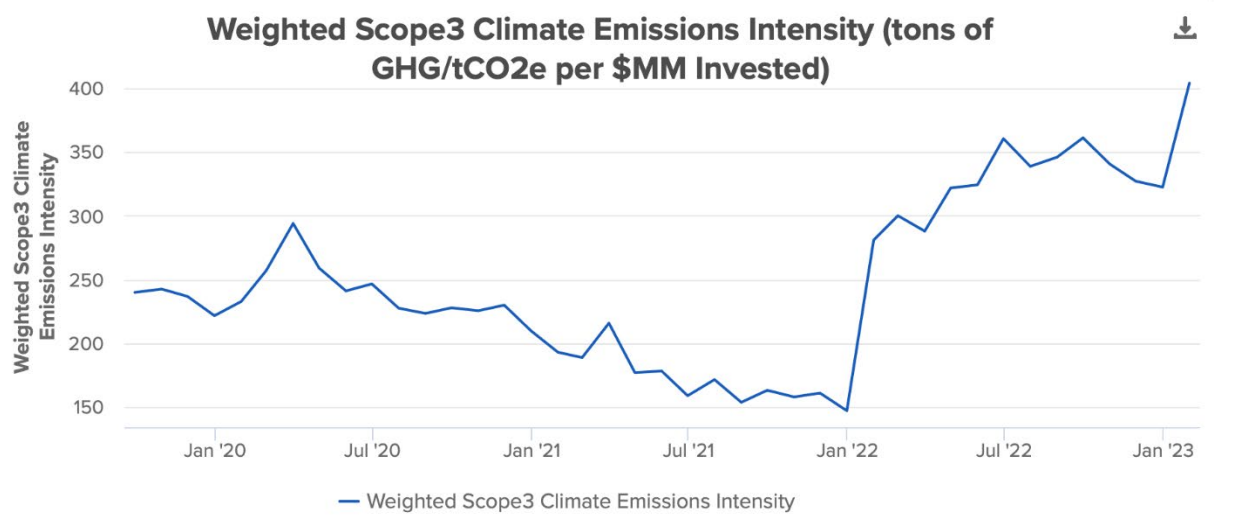
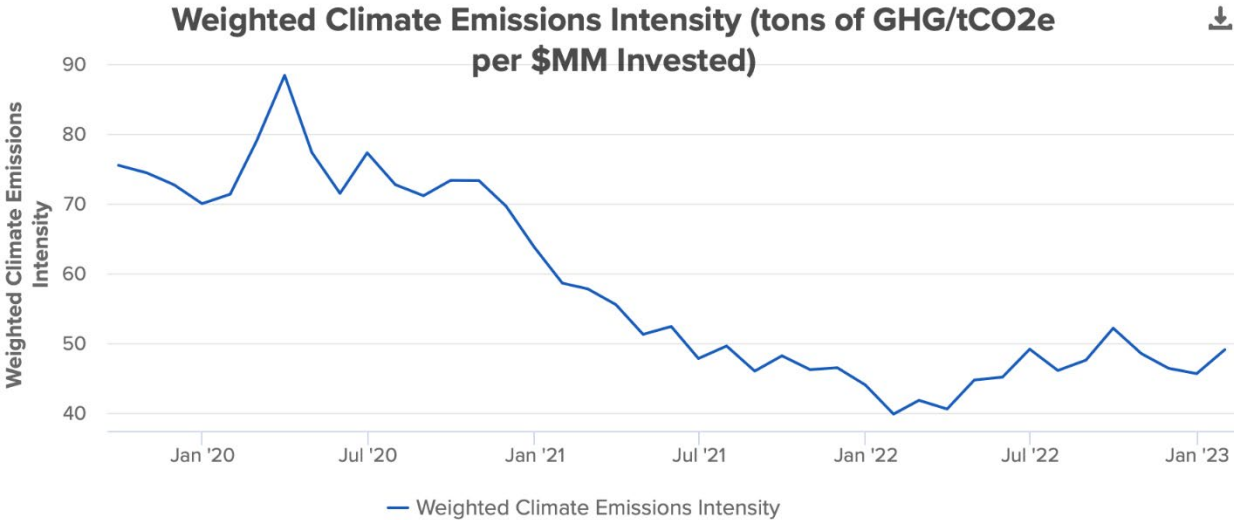
Percent Total Emissions Per Sector



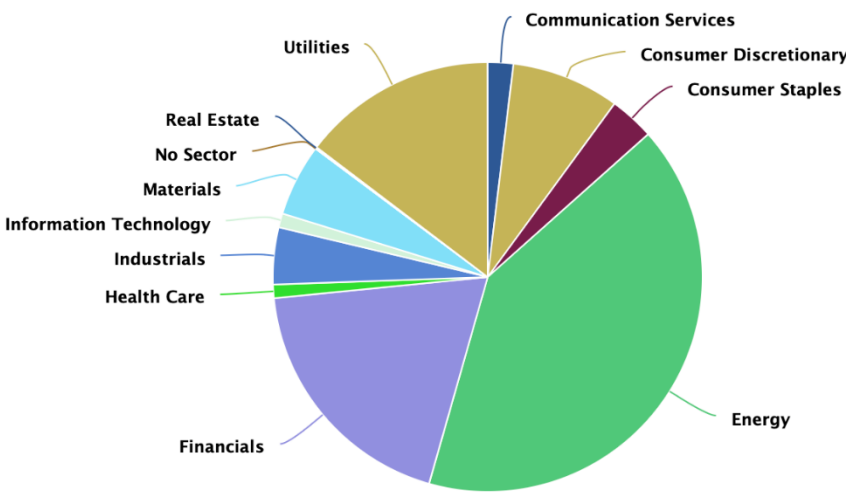
Percent Scope 3 Emissions Per Sector



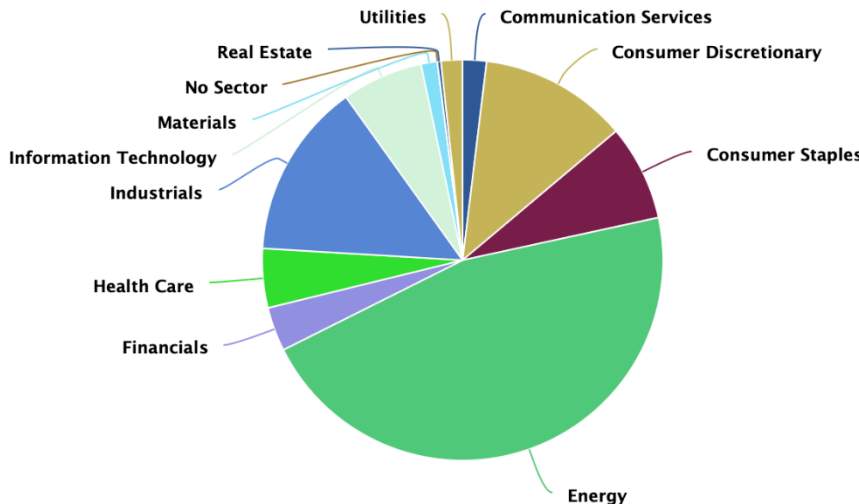
IWV ETF Emissions Details



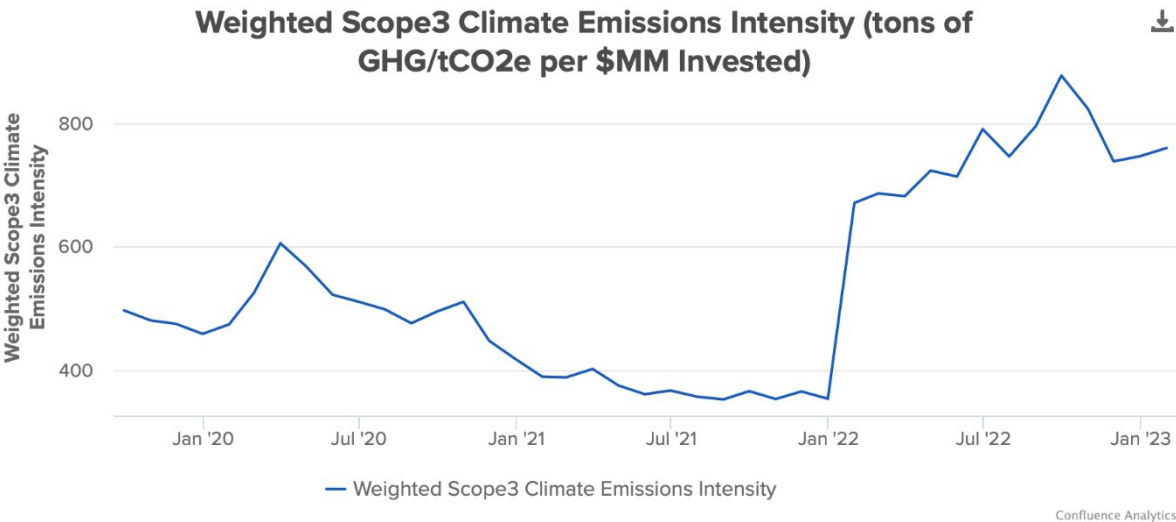
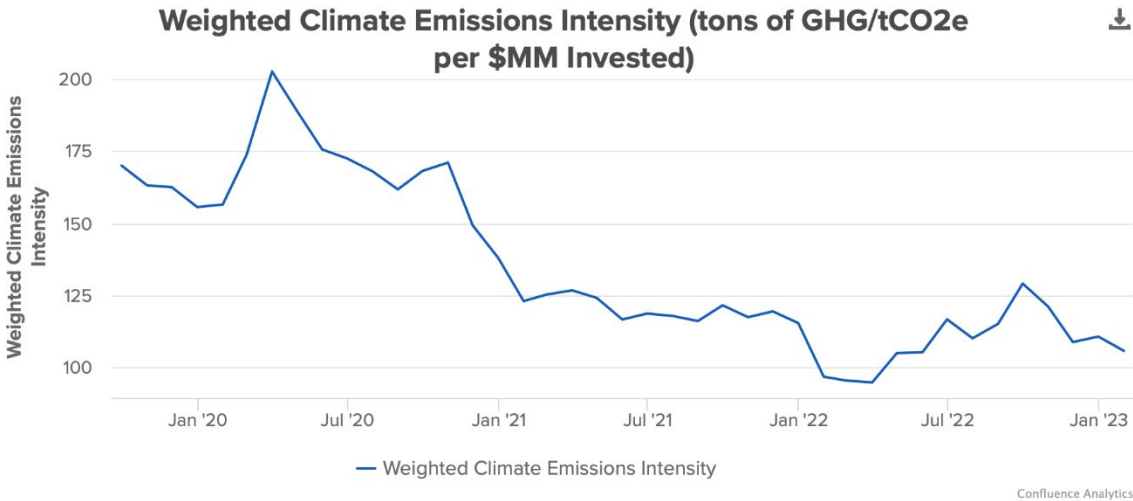
Percent Total Emissions Per Sector



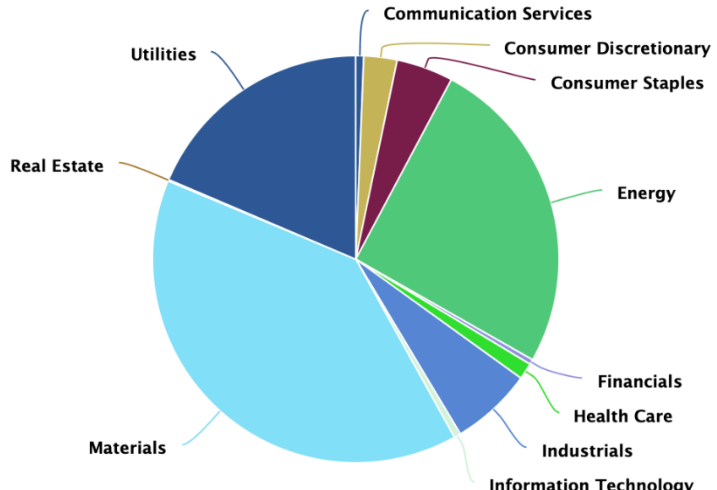
Percent Scope 3 Emissions Per Sector



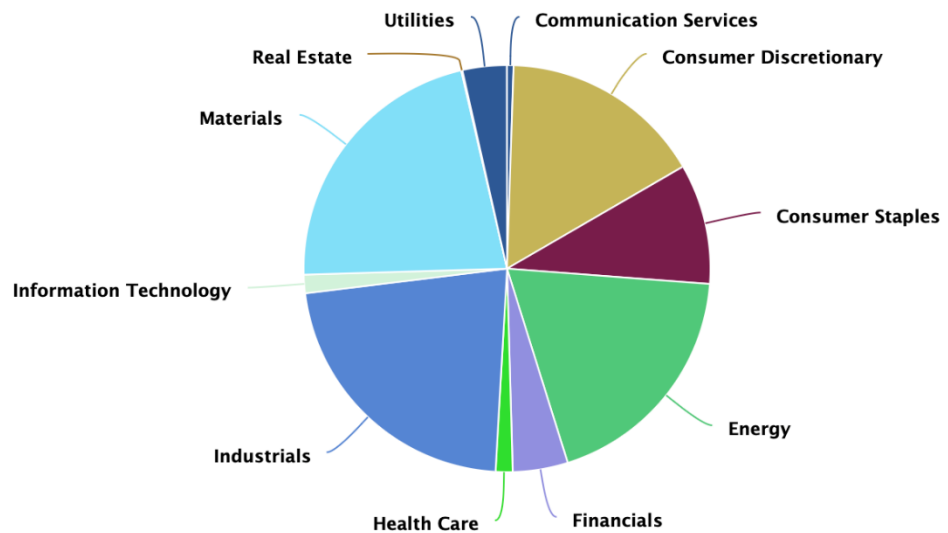
EFA ETF Emissions Details



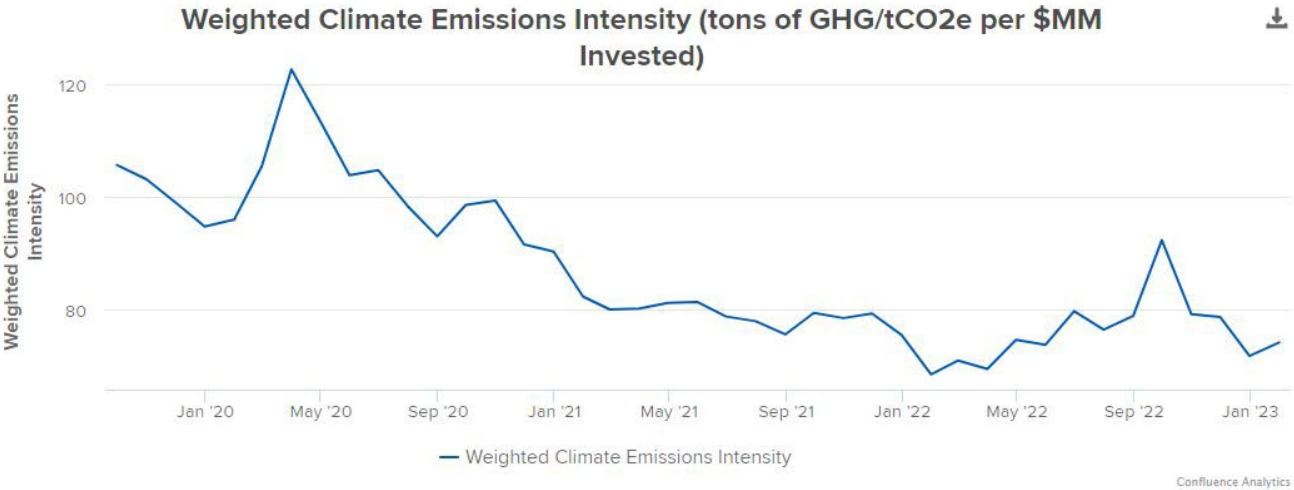
Percent Total Emissions Per Sector



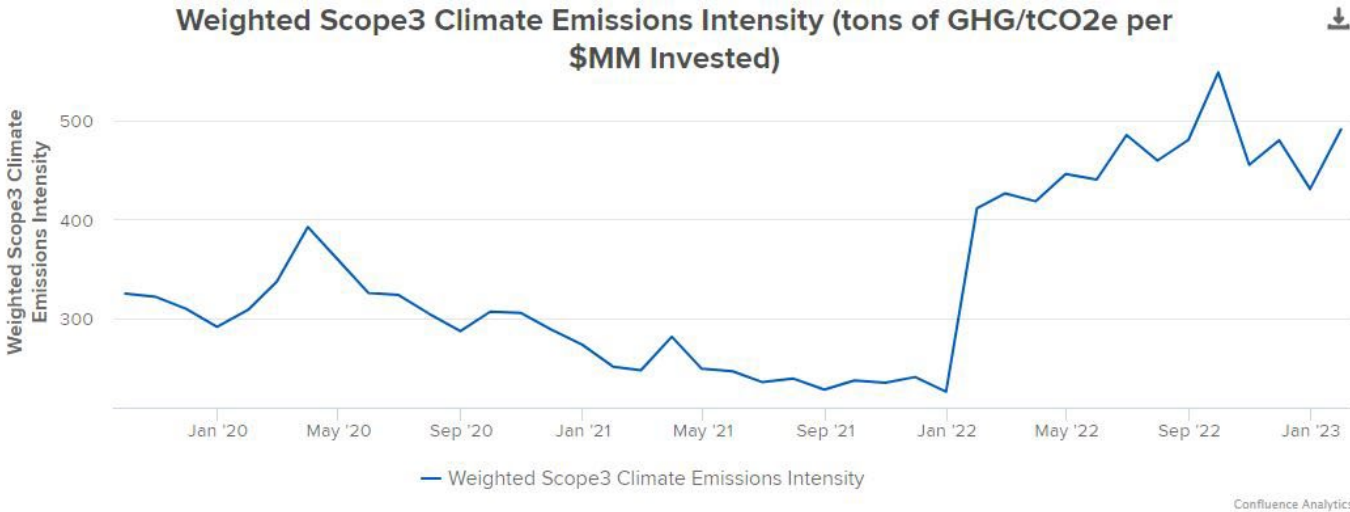
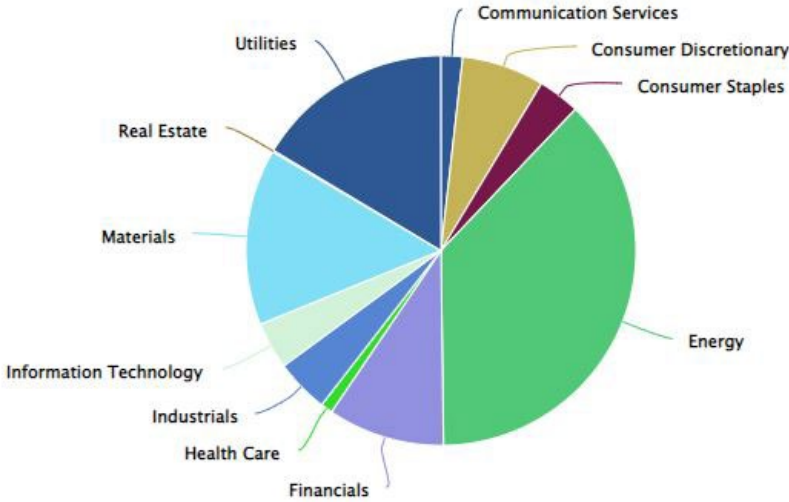
Percent Scope 3 Emissions Per Sector



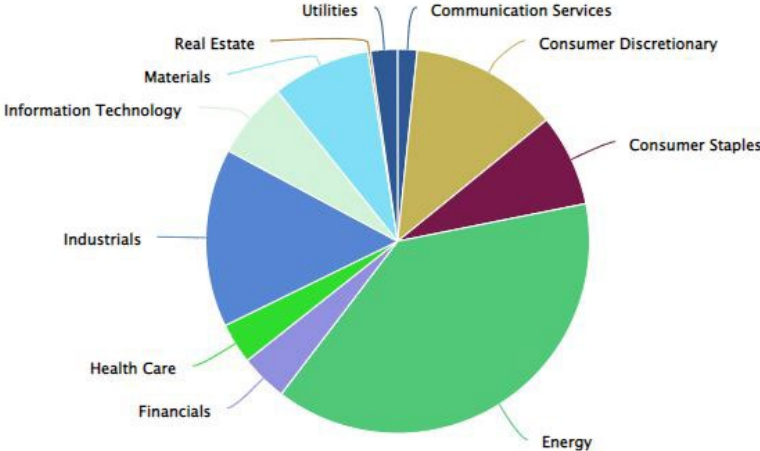
ACWI ETF Emissions Details



Percent Total Emissions Per Sector



Percent Scope 3 Emissions Per Sector



Thank you!

