



PORTFOLIO DIAGNOSTICS REPORT

CARBON EXPOSURE AND SUSTAINABILITY ANALYSIS

MD-MSRPS-2021

December 14, 2021

The Carbon Underground 200™ Exposure Analysis

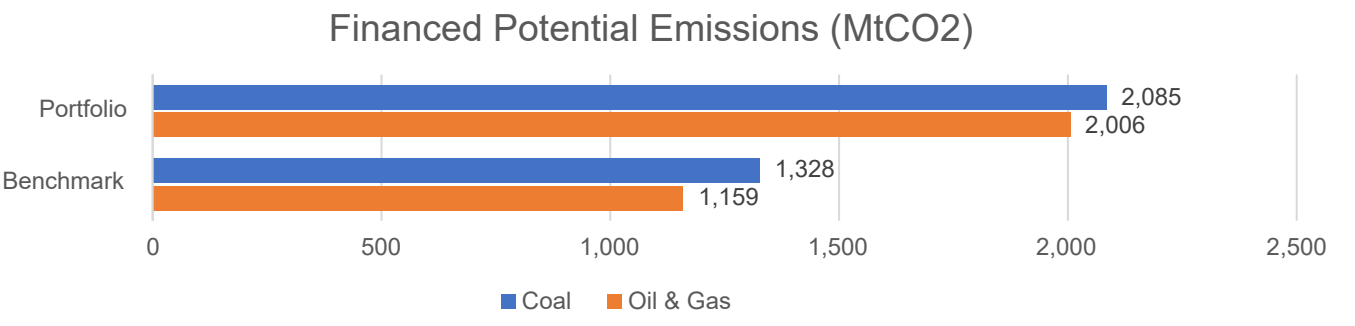
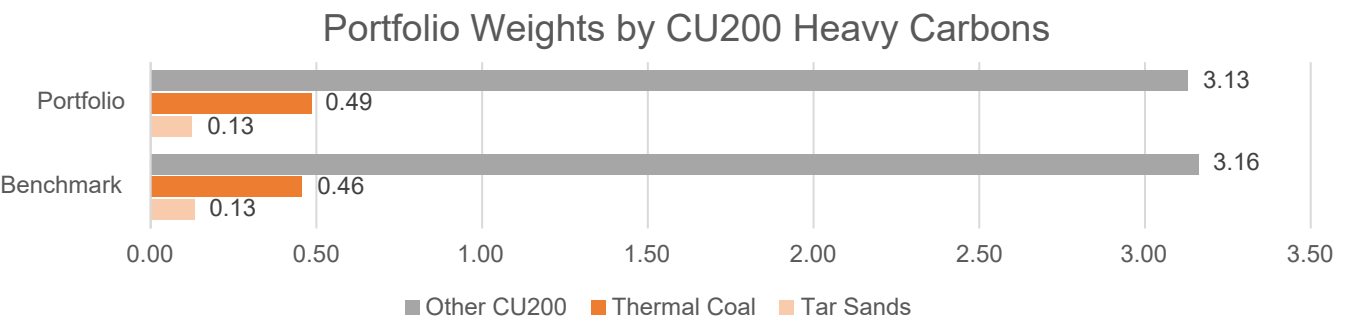
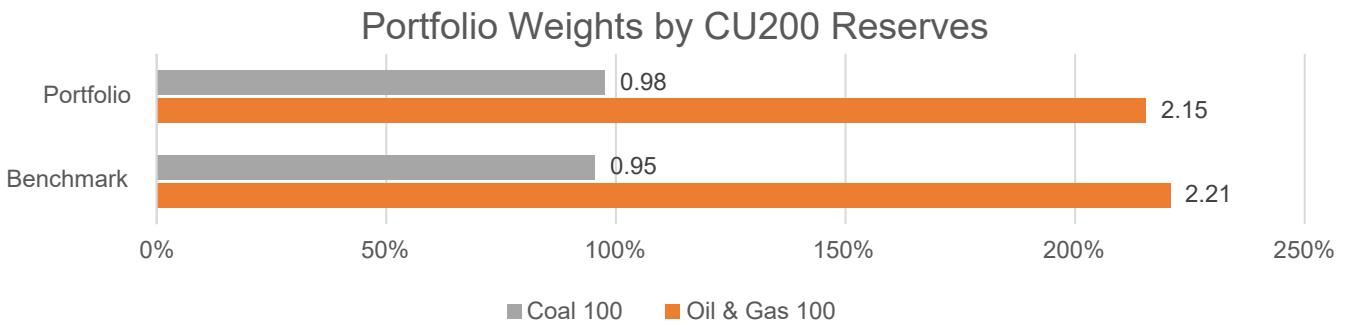
The Carbon Underground 200™ (CU200) represents the largest publicly-listed fossil fuel reserve owners ranked by the potential carbon emissions¹ embedded in their reported reserves. This section highlights the overlap between the **MD-MSRPS-2021** portfolio and the CU200. The benchmark used for the comparison is the **MSCI ACWI Index**.

- CU200 exposure by percent weight is lower than the benchmark
- Heavy Carbon² exposure by percent weight is greater than the benchmark
- Financed Potential Emissions³ by percent weight is greater than the benchmark

	No. of Constituents		Percent Weight			Financed Potential Emissions [†]	
	Portfolio	Benchmark	Portfolio	Benchmark	Over/ Under Wt.	Portfolio (MtCO ₂)	Benchmark (MtCO ₂)
Total Constituents	13,136	2,284	100	99		4,106	2,516
Non CU200	12,945	2,216	96.87	96.14	0.73		
CU200	191	68	3.13	3.16	-0.03	4,106	2,516
Coal 100 ⁴	86	26	0.98	0.95	0.02	2,085	1,328
Thermal Coal ⁵	67	21	0.49	0.46	0.03	1,146	662
Oil and Gas 100 ⁶	113	47	2.15	2.21	-0.05	2,006	1,159
Tar Sands ⁷	22	13	0.13	0.13	-0.01	39	39

Top Holdings

	Largest Potential Emissions Contributors
CU200	Gazprom PJSC Sponsored ADR
Coal 100	BHP Group Ltd
Thermal Coal	Glencore plc
Oil and Gas 100	Gazprom PJSC Sponsored ADR
Tar Sands	Canadian Natural Resources Limited



Total financed emissions per \$1M invested⁸ in portfolio are equivalent to:



887

Passenger vehicles driven for one year

or

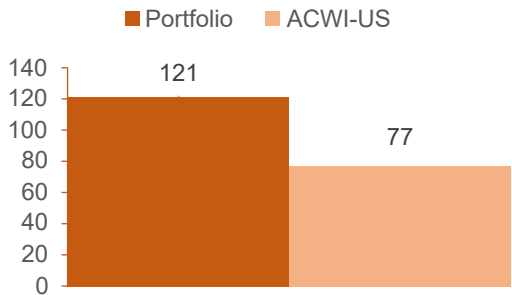


474

Homes heated for one year

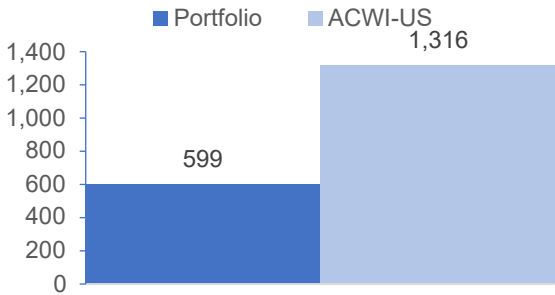
GHG Protocol (Scope 1 & 2) Carbon Emissions Analysis

As contrasted with reserves-based potential CO₂ emissions from the CU200 companies, the GHG Protocol (GHGP) standards facilitate the measurement of a company’s greenhouse gas emissions resulting from its operations. The GHG Protocol classifies emissions into three 'scopes'. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all other indirect non-Scope 2 emissions that occur in the value chain. Scope 3 emissions are not included as reporting is sparse and inconsistent.



Total Owned Scope 1 & 2 Emissions (tCO₂e)[†]

* Portfolio Companies reporting Scope 1: 3124; Reporting Scope 2: 3122; Reporting Scope 1 & 2: 3050



Weighted Avg. Carbon Intensity⁹ (MtCO₂e/Annual Sales)

* Benchmark Companies reporting Scope 1: 1497; Reporting Scope 2: 1503; Reporting Scope 1 & 2: 1482

Integrated Oil and Gas
Exploration

Top Total Emissions
Contribution Sector

Royal Dutch Shell Plc Class
B (RDSB)

Top Emissions
Contributor

Clean Energy Investment

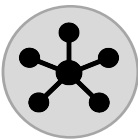
The transition from fossil fuel-based energy to clean energy is happening. Many investors are positioning their portfolios for this transition. This table shows your portfolio exposure to publicly-traded clean energy companies. The universe includes selected constituents of The Clean 200 and three clean energy ETFs: PBW, ICLN and QCLN.

CU200 vs. Clean Energy		Clean Energy Breakdown ¹⁰				
% in CU200	% in Clean Energy	Grid Modernization and Energy Storage	Total Renewable Electric Power Generation	Alternative Transportation	Renewable Fuels	Energy Efficiency
Portfolio	3.13%	0.81%	0.58%	0.84%	0.03%	1.19%

ESG Portfolio Overview - SUSTCO 3000 Universe



Sustco Scores¹³ and Ratings are leveraged by market participants to create SmartAlpha & SmartBeta investment portfolios and indexes to achieve their objectives for capital preservation, wealth generation and sustainable impact. The investment thesis embedded in the SUSTCO Scoring algorithm where enterprises that are in the top quartile are leaders in transparency, governance and ESG risk management, conversely the enterprises that in the bottom quartile present unknown ESG risks from a strategic, operational and reporting governance perspective.



3,176 / 13,136

Number of portfolio constituents in the SUSTCO 1000 Universe



69.86%

Portfolio weight represented in the SUSTCO 1000 Universe
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2,094

Number of ESG controversies¹² in the portfolio



† All Financed Potential Emissions and Owned Scope 1 & 2 Emissions are reported per \$1 Million invested.

- 1 **Potential Carbon Emissions** - The amount of carbon that would be emitted to the atmosphere in the form of carbon dioxide (CO₂) if the fossil fuel reserves were to be produced. Potential carbon emissions for reserves reported by each company are calculated based on the IPCC framework and the Potsdam Institute for Climate Impact Research and reported in gigatons.
- 2 **Heavy Carbon** - Heavy carbon statistics are the aggregate of Thermal Coal and Tar Sands statistics.
- 3 **Financed Potential Carbon Emissions** - An indicator of future emissions that your portfolio 'owns' by virtue of your equity interest in fossil fuel reserve owning companies. Each company's financed emissions are calculated as follows: (Total value of positioned owned/Total Market Cap) X Total Reserves based potential emissions.
- 4 **Coal 100** - The top 100 publicly listed companies owning proven and probable reserves coal reserves in the CU200.
- 5 **Thermal Coal** - Coal used as the principle means of generating electricity. Its high carbon is a major contributor to greenhouse gas emissions. Thermal coal statistics are the aggregate of companies listed in the Coal 100.
- 6 **Oil & Gas 100** - The top 100 publicly listed companies owning proven (1P) oil and gas reserves in the CU200.
- 7 **Tar Sands** - Unconventional reserves of sand, water, clay and a type of oil called bitumen that generate a premium of CO₂ emissions over conventionally produced oil because of the energy required to extract and process them. Tar sands statistics are the aggregate of companies listed in FFI Solutions' Tar Sands 20 list of publicly listed companies owning oil sands reserves.
- 8 **Impact Equivalents** - Calculations for the number of passenger vehicles driven for one year and number of homes heated for one year are found at <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.
- 9 **Weighted Average Carbon Intensity** - Represents the carbon intensity of the overall portfolio. Each company's carbon intensity is calculated (Scope 1 + 2 Emissions / \$M Sales) and the weighted average is determined as a proportion of the overall weight of companies in the portfolio.
- 10 **Clean Energy Companies** - Companies who generate more than 50% of their revenues from products in the energy sectors defined as clean by New York State Energy Research and Development Authority (NYSERDA).
 - **Alternative Transportation:** including electric; hybrid; plug in hybrid and fuel cell/hydrogen vehicles; battery storage; as well as natural gas and other alternative fuel buses;
 - **Energy Efficiency:** including lighting; heating, ventilation and air conditioning; air source heat pumps; advanced building materials; insulation and air sealing and; other high efficiency product and services;
 - **Grid Modernization and Energy Storage:** including smart grid; microgrid; demand response management; grid storage;
 - **Renewable Electric Power Generation:** including solar; wind; geothermal; low impact hydropower; other renewable generation technologies;
 - **Renewable Fuels:** including biofuels such as biodiesel and ethanol.
- 11 **The SUSTCO Score** - calculated for every company in the SUSTCO 3000 universe based on a company's ESG + Financial performance across 40 quantitative metrics. The results of the SUSTCO scoring and rating calculations are derived from each dimension – Environmental, Social, Governance and Financial. Individual KPI scores are available for each dimension and underlying performance metric based on relative strength and weakness when compared to the best in class SUSTCO 3000 Universe.
- 12 **ESG Controversies** - tracks the total number of recent company exposures to environmental, social and governance controversies and any major negative events reflected in the global media. During a given year, if a scandal occurs, the company involved is penalized for every new recent controversy out of 23 ESG topics tracked via the CRD Global controversy database.
- 13 **% Contribution to Portfolio Emissions** - For contribution to total reserve type emissions and total portfolio emissions: Company Financed Emissions / Total Financed Emissions
- 14 **Benchmarks** - ETF equivalents
 - **S&P 500** - ETF SPY is used as reference.
 - **Vanguard FTSE Developed All Cap ex US** - ETF VEA is used as reference.
 - **Russell 2000** - ETF IWM is used as reference.
 - **MSCI ACWI** - iShares MSCI ACWI ETF is used as reference.

FFI Solutions

Established in 2013, FFI Solutions is a research and advisory firm committed to facilitating a sustainable future. Built on our deep roots in addressing climate change through investment solutions, we are focused on creating pathways that assist for financial market participants to transition capital to climate friendly and sustainable investments strategies. We leverage technology to transform data and research into actionable information that empower and assist clients to make well informed decisions and build customized sustainable investment portfolios and products.



CRD Global is an industry leader in the Next Generation of Investment Analysis for a Sustainable Future. Formed over a decade ago with its historic launch of the first rules based index, the Nasdaq CRD Global Sustainability Index, CRD Global continues to lead with the SUSTCO Score methodology for ranking, screening and optimizing ESG investment portfolios and research analysis. CRD Global's top tier strategic partners such as Nasdaq, Refinitiv, Fuzzy Logix and FFI allows for a comprehensive set of AI based tech solutions with cutting edge financial and non financial data to serve its growing customer base in Asset Management, Hedge Funds and boutique Investment firms.



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Contacts:

Mike Palmieri
mpalmieri@ffisolutions.com
(646) 556-5900 Ext. 702

David Root
droot@ffisolutions.com
(646) 556-5900 Ext. 704