

Sierra Club Green Alpha

December 31, 2023



Green Alpha[®]

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Investment Philosophy

Today's economy derives its most significant growth from innovative, high-performing businesses that actively develop and expedite solutions addressing critical systemic issues such as the climate crisis, resource degradation, inequality, and diseases. These companies represent the most promising investment opportunities for both safeguarding and increasing our clients' capital.

Green Alpha adheres to a straightforward philosophy: we actively seek out companies pioneering swiftly scalable and rapidly adaptable, economically competitive solutions.

Our investments seek to de-risk the global economy (which in turn reduces clients' long-term investment risks) by focusing on sectors and industries growing faster than underlying GDP.



Why Invest in Sierra Club Green Alpha?

- Active research, stock selection, and portfolio mgmt
- Harness Green Alpha's Next Economy™ insights alongside Sierra Club's unequaled environmental and social standards
- Access 30-50 market leaders addressing vital economic and environmental challenges

Inception Date: December 31, 2010

Vehicle: Separately Managed Accounts

Research

Across portfolios, we aim to identify companies meeting the following criteria:

- They offer products and/or services that mitigate the risk profile of the global economy by providing solutions to pressing economic and environmental challenges.
- Companies allocating a significant portion of revenue to R&D, CapEx, and possessing more IP than their peers.
- Those led by shareholder-aligned, effective, and diverse executive teams and BODs with a record of increasing revenues and expanding profit margins, which in turn drives earnings growth.
- Companies with prudent capital allocation priorities and strong balance sheets.
- Those with shares trading at attractive valuations relative to proven and anticipated growth prospects.

Portfolio Construction

Green Alpha is proud to be the only financial services firm licensed to utilize the Sierra Club's rigorous environmental and social guidelines. Not only are the Sierra Club's criteria aligned with ours on a forward-looking basis, the Sierra Club[®] also requires a firm's entire operating history to be compliant with their guidelines.

Every portfolio holding is a high-impact, forward-looking Next Economy solutions provider contributing to the transition to a sustainable economy, with a Sierra Club-compliant operating history.

Largest Positions

How the Sierra Club Green Alpha portfolio is driving progress toward the Next Economy

JinkoSolar Holding (Sector: Energy, Industry: Renewable Energy)

- JinkoSolar is one of the world's largest solar panel manufacturers and the most vertically integrated, making ingots, cells, panels, and modules. They distribute to 160 countries and manufacture products in the U.S., China, Malaysia, and Vietnam, thus mitigating political and trade dispute-related growth obstacles.
- JinkoSolar's production capacity is expanding. In 2021, the company had a total production capacity of 55 GW. In early 2024, Jinko expects to have annual production capacity of over 100 GW, roughly enough to power 75 million homes.
- The company continues to emphasize R&D, achieving mass production efficiency exceeding 26.1% for their 16 GW N-type cells, which is a world record for n-type solar cell efficiency.
- Of the world's top five PV manufacturers, Jinko alone has grown its global module market share in the last year and has ranked number one in global shipments for the past four years. Jinko's strong financial and operational performance in the first three quarters of 2023 enabled the company on September 26th to announce a dividend of \$1.50 per share/ADR.
- JinkoSolar is the top-ranked firm on the Silicon Valley Toxics Coalition's Solar Scorecard, receiving 100 out of 100 points for operational sustainability. The company plans to run on 100% renewable energies by 2025 and is a member of RE100. Their executive team has a strong age spread of 31 years and the board's is above average at 27 years.

Lam Research (Sector: Technology, Industry: Semiconductors)

- Lam Research is a global leader specializing in design, manufacture, and service equipment used in wafer fabrication.
- Wafer Fabrication Equipment: Lam develops and produces essential equipment used in various stages of semiconductor chip manufacturing, including thin film deposition, plasma etch, wet processing, and wafer cleaning.
- Technology Focus: They continuously innovate and refine technologies to enhance performance, precision, and efficiency in chip production. This includes exploring advancements like atomic layer deposition and high-aspect-ratio etching for ever-smaller and more complex chip designs. Lam's technology plays a crucial role in making smaller, faster, and more powerful chips, impacting various fields like artificial intelligence, mobile technology, and healthcare.
- Customer Base: Lam serves leading semiconductor foundries, memory manufacturers, and integrated device manufacturers worldwide, supplying critical equipment for their production lines. Lam is known for its innovation and technological leadership, with a focus on R&D to advance semiconductor manufacturing processes.
- Investment in R&D: They devote significant resources to R&D, pushing the boundaries of technology and continually improving their capabilities. The company has a strong IP property portfolio with 17,000+ patents granted or pending.
- Female members of Lam's executive leadership team include the SVP of Corporate Strategy, Chief Legal Officer, Chief HR Officer, and Chief Communications Officer.

Vestas Wind Systems (Sector: Energy, Industry: Renewable Energy)

- Vestas is a leader in wind energy, designing, manufacturing, installing, and servicing onshore and offshore turbines.
- With over 173 gigawatts of installed wind turbine capacity globally, Vestas powers millions of homes and contributes significantly to renewable energy production. They hold the record for both the highest number of installed wind turbines (55,000+) and the most powerful onshore wind turbine in operation (the V236-15.0MW).

Vestas Wind Systems, Hudson Pacific Properties, and First Solar's Next Economy attributes are continued on the following page.

Company Name	Ticker	Weight
JinkoSolar Holding	JKS	5.13%
Lam Research	LRCX	4.70%
Vestas Wind Systems	VWDRY	4.49%
Hudson Pacific Props.	HPP	4.41%
First Solar	FSLR	4.28%
% of Portfolio		23.01%

Largest Positions *continued*

Vestas Wind Systems *continued*

- Vestas continues to grow its large order backlog, now \$25 billion+, and its service order backlog is \$38 billion+. The sizeable combined order backlog translates to projected increased revenue for Vestas in the coming years.
- Vestas goes beyond just producing turbines. They offer a comprehensive range of services, including project development, construction, operation and maintenance, and asset optimization. Their global network of service technicians ensures consistent performance and maximizes the lifespan of wind farms. The average service contract duration is 10 years, providing a long runway of revenue transparency. They also provide data-driven insights and analytics to help customers optimize their energy production and make informed decisions.
- Vestas' board is 45% female and women serve on all committees.

Hudson Pacific Properties *(Sector: Real Estate, Industry: REITs)*

- Hudson Pacific Properties (HPP) is a real estate investment trust (REIT) that owns, acquires, develops, and operates office and studio properties focused on the tech and media sectors primarily across select West Coast office markets.
- HPP's significant presence and large-scale campuses in Hollywood and Silicon Valley are largely owned and managed high-quality media studios and Class-A tech-centric modern office spaces.
- Here are a few key reasons why Hudson Pacific Properties stands out as resilient compared to many REITs:
 - Diverse Blue-Chip Tenant Base: Tenants include major technology firms (Google, Twitter, Uber) and media/streaming giants (Netflix, Disney) across sectors poised for long-term growth.
 - Modern Architectural Pedigree: Many HPP buildings boast contemporary award-winning architectural designs well-suited to attracting top creative class tenants.
 - High credit worthy tenant mix limits risks associated with downturns or loss of any single key occupant.
 - HPP maintains a conservative capital allocation strategy, prioritizing reinvestment in its core business and maintaining financial strength over aggressive expansion. This prudent approach limits debt exposure and provides a financial buffer to navigate challenging economic conditions.
- Hudson Pacific possesses specialized sector expertise matching high-demand tenants with premium workspaces in core economic growth regions—enabling it to stand resilient across market cycles.

First Solar *(Sector: Energy, Industry: Renewable Energy)*

- First Solar is a leading global provider of comprehensive photovoltaic (PV) solar solutions, designing and manufacturing solar modules and systems for utility-scale and commercial installations. Their modules utilize a proprietary thin-film semiconductor technology, designed and manufactured in highly automated factories. This achieves efficiencies and performance reliability advantages vs conventional panel manufacturing.
- Unique among large solar manufacturers, First Solar is a U.S.-headquartered company and does not use crystalline silicon (c-Si) semiconductors. That means they have fewer supply chain dependencies than traditional c-Si solar PV makers, and avoid dependencies on China, which dominates the c-Si industry.
- Catalysts driving results are an already-strong order flow and the Inflation Reduction Act ("IRA"). Under the IRA, First Solar stands to earn subsidies as high as 17 cents/watt, which is more than half of their production cost.
- They plan to grow revenues by investing \$1.1 billion in a new 3.5 GW module factory in Alabama, the company's fourth domestic facility, while an additional \$185 million will add 1 GW of new manufacturing to the company's plant in Ohio.
- First Solar has vertically integrated manufacturing providing the lowest carbon footprint among all solar module makers.

Please see the final page of this document for important disclosures about portfolio, benchmark, and characteristic information.

Macroeconomic Commentary

Our complete [2023, 2024, and the Road Ahead](#) review is available [here](#); the summary provided below aims to spark your curiosity to explore the comprehensive content and associated source materials.



In 2023, the dichotomy of our future became starker: a potential utopia or a daunting dystopia. Our path hinges on collective decisions, particularly in financial investments. Money, as a potent agent of change, directs economic growth. Where we choose to invest can either propel innovations that solve critical problems, fostering economic expansion and societal progress, or lead us toward detrimental outcomes. The key lies in aligning our financial resources with sustainable and innovative ventures that promise a brighter, richer, and more abundant, more equitable future. What were 2023's key milestones of hope and despair?

First: Despair. Key negative events in 2023 that affected and continue to pose economic and market risks

- **Climate Crisis:** Increased severity of climate events; high investment in fossil fuels both prolonging and causing further environmental damage; subsequent economic risks like insurance companies withdrawing from high-risk areas
- **Geopolitical Conflicts:** Escalation of global conflicts affecting economies and markets; significant wars include Israel-Hamas and Russia-Ukraine
- **American Political Landscape:** Potential impact of the 2024 U.S. Presidential election on environmental policies and global climate action
- **China's Economic Challenges:** China is facing a decline in foreign investments and economic growth due to high debt-to-GDP ratio, affecting global economic dynamics, but also incentivizing China to stabilize relations with the U.S.

What IS Working?

- **Renewable Energy Growth:** Significant increase in renewable energy adoption and electric vehicle (EV) use; advancements in solar technology and reduction in costs
- **Biotechnological Advances:** Gene editing, particularly CRISPR-Cas9, is showing potentially unlimited promise in medicine and agriculture
- **AI Integration:** AI's growing role in the economy and its impact on productivity and solving major issues
- **Market Conditions:** Improving environment for innovation-driven companies; shifts in investment patterns and potential for growth in sustainable technology sectors; some growth stocks appear undervalued

2024 Financial Outlook: Continued expensive money, geopolitical economic reshaping, and rapid technological advancement impacting investment and growth strategies

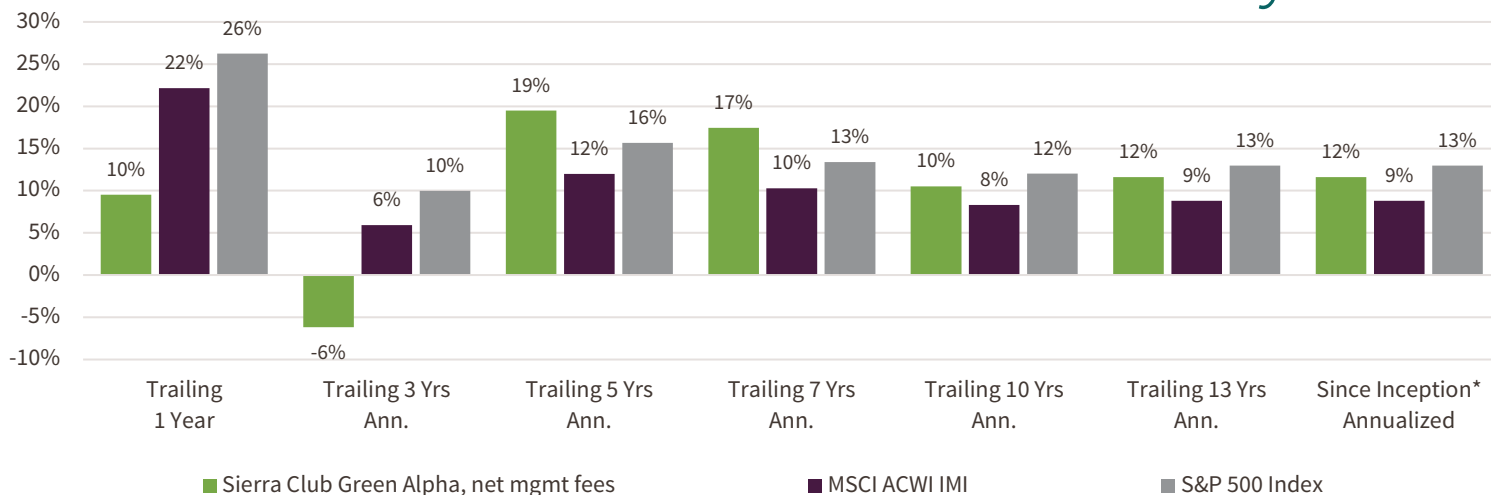
- The climate crisis is worsening—higher temperatures and more extreme weather are likely
- China taking a more collaborative stance with the West as its economy struggles

Key Unknowns

- Whether geopolitical conflicts spread or cool down
- If \$6 trillion in money market funds flows to stocks and other risk assets, that could fuel appreciation in share prices of growth companies

In the context of escalating global challenges, technological innovation emerges as a pivotal force for stability and economic progression. For fiduciaries, it's prudent to direct investment portfolios towards companies demonstrating resilience and innovation in sustainable production functions that can support long-term global growth. These firms are not only transforming their industries, but also show a robust capacity to flourish amid complex global dynamics. A strategic emphasis on such sustainability-focused enterprises highlights the critical role of technology in driving meaningful global change, lowering economic and portfolio risks, and aligning financial returns with positive impact.

Portfolio Performance & Commentary



For the full year 2023, the Green Alpha Sierra Club portfolio returned 9.51% net of management fees, versus its benchmark, the MSCI All Country World Investable Market Index (MSCI ACWI IMI), which returned 22.15%.

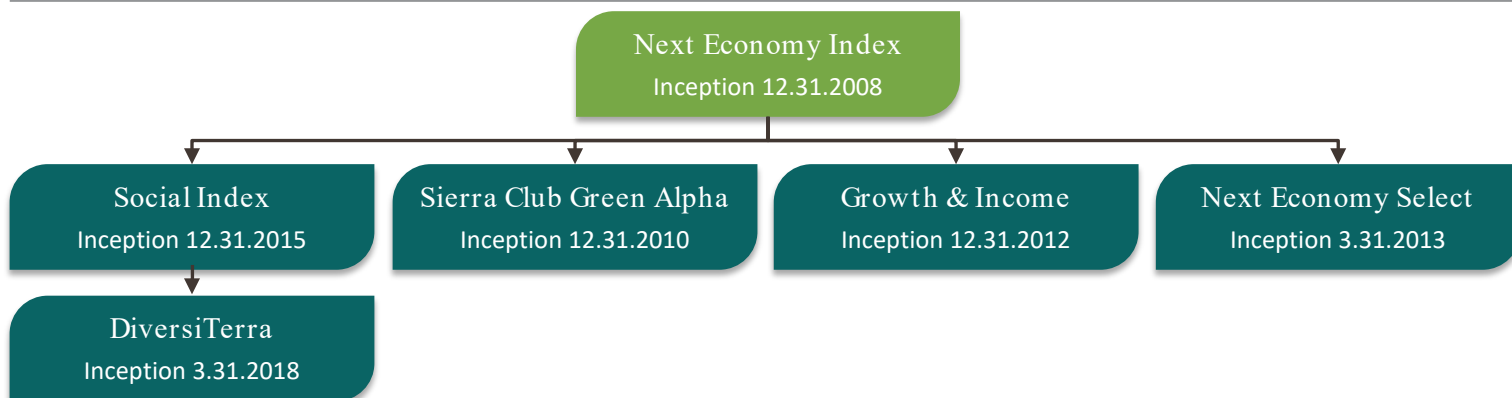
The sectors detracting the most from the strategy's returns were Energy and Health Care.

- Within Energy, solar was the most significant detractor due to headwinds affecting the industry and the portfolio's overweighting to the theme. Losses in solar were from multiple verticals, including power inverter makers, panel and module makers, and energy storage companies. Headwinds included the rise in interest rates making solar projects at both the utility and homeowner scales appear less financially attractive, temporary supply chain challenges, and a narrative-driven lowering of market appetite for growth-oriented equities. Despite these dynamics, we continue to maintain significant weighting in solar as it remains one of the world's fastest growing industries, is enjoying cost reductions leading to expanding margins, and continues to advance and the cheapest source of new electricity generation available in most of the world. Losses from solar were partially offset by gains from our wind energy stocks, despite that industry facing similar headwinds overall.
- The portfolio has limited exposure to five Health Care companies at 7.36% of the portfolio (vs. 20% of U.S. GDP). Two of the holdings had share prices up for the year and three were down. The gainers were a leading provider of genomic therapeutics as well as a synthetic biology maker and testing provider, and the detractors were the world's two leading providers of mRNA vaccines and therapeutics. Here we note that in the short term, equity markets can fail to recognize the longer-term potential of a large pipeline of promising solutions and can show a disconnect between positive business results and share price.

The strategy's best performing sectors were Technology and Real Estate.

- Technology contributed the most to returns, with manufacturers and upstream equipment providers leading, followed by chip designers. Thematically, interest in AI tended to favor the designers, although the essential practical work of foundries in making the actual chips was also recognized by markets; however, in this strategy we have more significant weighting on foundries and equipment makers. Following semiconductors, our exposure to security, and automation and design software companies was the next most significant area of contribution. Technology hardware companies were also strong, with most contributions coming from mobile communications and consumer electronics hardware. As a reminder, Green Alpha believes that technology presents a uniquely powerful solution set for addressing the world's top systemic risks, and in fact, tech addresses each of our [four pillars of the Next Economy](#).
- Our exposure to Real Estate was almost uniformly positive across REIT subgroups including office, data centers, industrial, and infrastructure REITs (*within infrastructure, a communications REIT was the sole detractor*). While data center REITs performed well throughout 2023, the other subcategories rallied only in Q4, as expectations for a plateau in interest rates became the dominant narrative. On a fundamentals level, our REIT companies executed their business models exceptionally well throughout the year, even when share prices didn't reflect it, as their sustainable, desirable spaces were in high demand and their occupancy rates were above industry average. We believe that our careful, selective evaluation process results in a highly curated set of equities with excellent potential for continued appreciation matched with an above-average dividend yield.

**Portfolio Inception: December 31, 2010. All returns presented above that are greater than 1 year in length have been annualized. Performance data quoted represents past performance. Past performance does not guarantee future results and current performance may be lower or higher than the data quoted. Please see the final page of this document for additional important disclosures.*



- **Sierra Club® criteria** – the only portfolio available in the market that utilizes the Sierra Club’s proprietary, rigorous social and environmental screening criteria
- **Fundamentals-driven:** the underlying quality of companies and the price paid for their shares are key drivers of LT returns
 - ✓ **High growth:** indicated by Sales Growth, and a decrease from Current P/E to Forward P/E as revenue and earnings grow
 - ✓ **Compelling valuation:** demonstrated by Price/Sales and Price/Book metrics relative to growth expectations
 - ✓ **Strong balance sheet and management execution:** conveyed by capital stewardship, LT Debt/Equity, Current Ratio
- **Diversified – we seek solutions wherever we can find them:** across the globe, in companies of all sizes, and every industry
- **Public equities, long-only:** most investors’ largest asset class, so their largest opportunity for impact
- **Fossil fuel free since inception:** we never invest in companies that prospect, extract, refine, or transport fossil fuels, nor in fossil-fired utilities or internal combustion engine manufacturers

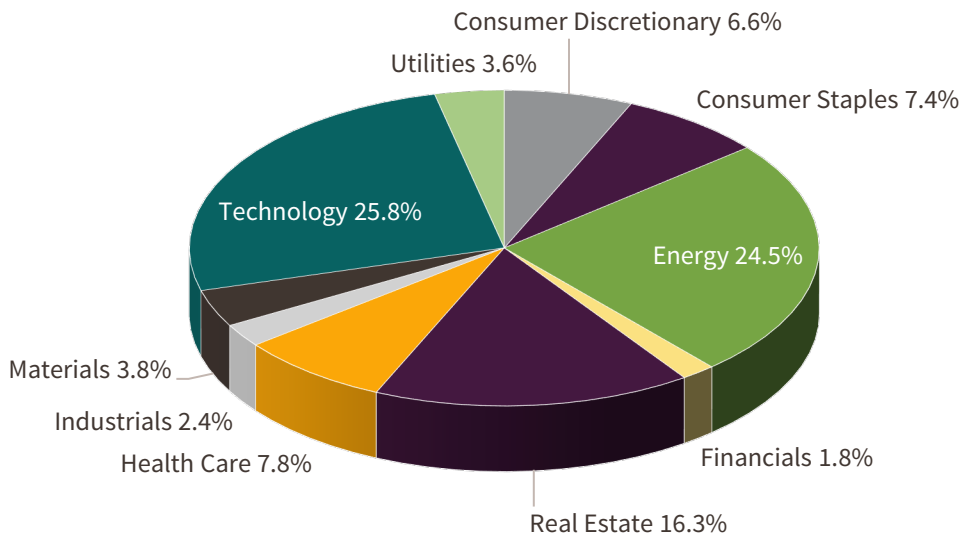
Characteristics	Sierra Club Green Alpha	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Social Index	Next Economy Select	Growth & Income	DiversiTerra
# of Securities	46	2,639	150	114	66	36	58
Active Share vs SPGM	96%	-	92%	94%	96%	97%	95%
Active Share vs Next Economy Index	68%	-	-	29%	63%	71%	61%
Sales Growth, Trailing 3-Yr	39%	15%	47%	63%	35%	23%	59%
P/E, Current	14.1	18.0	21.4	25.0	16.2	15.2	21.0
P/E, 1-Year Forward	16.0	17.1	23.9	27.1	18.6	15.2	25.4
Price/Sales	0.9	1.8	2.2	2.3	1.6	1.3	2.1
Price/Book	1.9	2.6	2.8	2.7	2.2	1.7	2.4
LT Debt/Equity	60%	156%	58%	58%	47%	62%	56%
Current Ratio	3.5	2.3	3.9	3.8	4.5	3.4	4.2
Dividend Yield	1.97%	2.11%	1.17%	1.02%	1.90%	3.93%	1.54%
Market Cap, Wtd Avg (\$B)	\$124.36	\$431.37	\$94.81	\$82.46	\$126.13	\$75.28	\$116.58
Market Cap, Median (\$B)	\$7.41	\$2.55	\$8.26	\$9.69	\$5.14	\$28.37	\$5.64
Turnover, Trailing 2-Yr Avg	10%	Not Available	25%	39%	12%	16%	28%
Beta, Trailing 3-Yrs	1.31	1.00	1.31	1.39	1.36	1.27	1.32
U.S.-Domiciled Companies	72%	59%	78%	87%	68%	68%	81%
% Revenue Derived in U.S.	46%	44%	49%	57%	46%	46%	55%

Characteristics are sourced from FactSet, based on a representative account and include cash. Please see additional disclosures on last page.

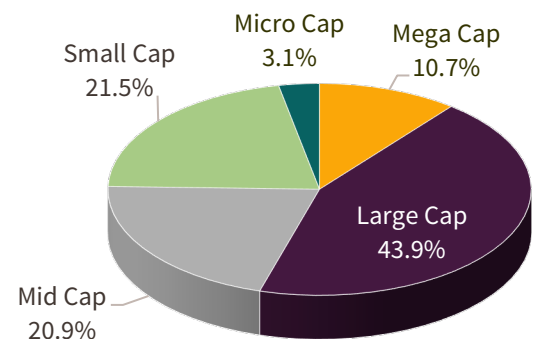
Portfolio Allocations

Our search for Next Economy companies is unconstrained. For the Sierra Club Green Alpha portfolio, we seek solutions to systemic risks wherever they exist – across sectors, market caps, and geographies.

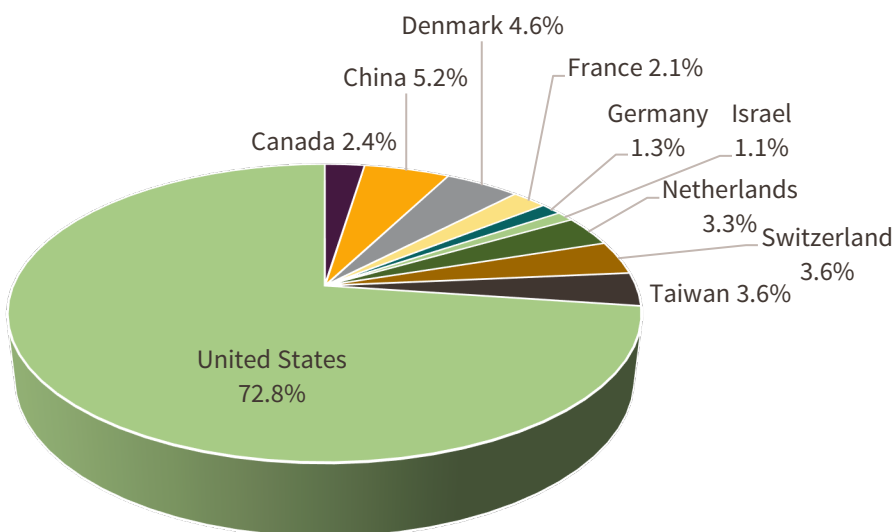
Sectors



Market Capitalizations



Companies' Main Headquarters



Allocation data is sourced from FactSet and is based on a representative account. The exception is the sector chart, which utilizes the Bloomberg Industry Classification Standard from Bloomberg. All charts on this page are shown as percent of equity. Please see the final page of this document for additional important disclosures.

Important Disclosures

- Green Alpha Advisors, LLC is a registered investment advisor. Registration as an investment advisor does not imply any certain level of skill or training.
- Green Alpha Investments is a trade name of Green Alpha Advisors, LLC. Green Alpha is a registered trademark of Green Alpha Advisors, LLC. Green Alpha Advisors also owns the trademarks to “Next Economy,” “Next Economics,” “Next Economy Portfolio Theory,” “Investing in the Next Economy,” and “Investing for the Next Economy.”
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- Performance quoted throughout this document represent past performance. Past performance does not guarantee future results, and current performance may be lower or higher than the data quoted. Investment returns and principal will fluctuate with market and economic conditions, and investors may have a gain or loss when shares are sold.
- Beginning November 30, 2021, the Sierra Club Green Alpha strategy performance results are a composite of discretionary client accounts invested in the strategy on specific custodial platforms. Green Alpha’s discretionary client accounts that are not included in the composite are those custodied at Folio Institutional due to operational limitations of Folio’s data feeds to Green Alpha’s portfolio accounting system Advent APX. Beginning May 31, 2023, composite membership also includes a minimum account size of \$25,000. The Sierra Club Green Alpha composite performance results reflect actual performance for a composite of discretionary client accounts meeting custodian and minimum account size requirements. Net of actual management fees and transaction costs. Some assets managed in the Sierra Club Green Alpha strategy within the composite receive a reduced fee from the standard management fee schedule. Actual client returns experienced will vary from the composite returns based on a variety of factors, and we encourage you to ask about specific factors. Accounts are included in the composite for full-month periods under management with Green Alpha Investments. The Sierra Club Green Alpha performance results do not reflect the reinvestment of dividends and interest.
- Actual advisory fees may vary among clients with the same investment strategy. Green Alpha’s standard fee schedules are available within Form ADV Part 2. For those details and additional legal information, please see information and files here: <http://greenalphaadvisors.com/about-us/legal-disclaimers/>.
- From the strategy’s inception through November 30, 2021, Sierra Club Green Alpha performance results reflected the actual performance of a representative account, net of actual management fees and transaction costs. Assets managed in the Sierra Club Green Alpha strategy representative account received a reduced fee from the standard fee schedule. Sierra Club Green Alpha representative account performance results did not reflect the reinvestment of dividends and interest. Please contact Green Alpha for information about the representative account selection process.
- Green Alpha portfolios may invest in companies with small and medium market capitalizations, which may have more limited product lines, markets, and financial resources than larger companies. In addition, their securities may trade less frequently and in more limited volume than those of larger companies. Small or mid-cap stocks may be more volatile than those of larger companies and, where trading volume is thin, the ability to dispose of such securities may be more limited. Green Alpha portfolios may also invest in foreign domiciled companies. Investing in foreign securities may involve additional risks, including exchange-rate fluctuations, limited liquidity, high levels of volatility, social and political instability, and reduced regulation. Emerging markets are often more volatile than developed markets and investing in emerging markets involves greater risks. International investing may not be suitable for everyone. An investment in Green Alpha portfolios should be considered a long-term investment.
- The holdings identified throughout this document do not represent all the securities purchased, sold, or recommended for advisory clients. You may request a list of all recommendations made by Green Alpha in the past year by emailing a request to info@greenalphaadvisors.com. It should not be assumed that the recommendations made in the past or future were or will be profitable or will equal the performance of the securities cited as examples in this document.
- The MSCI All Country World Investable Market Index (ACWI IMI) captures large, mid, and small cap representation across 23 developed markets and 27 emerging markets countries. With more than 8,750 constituents, the index is comprehensive, covering approximately 99% of the global equity investment opportunity set. Investors cannot invest directly in this index.
- The SPDR MSCI Global Stock Market ETF (ticker: SPGM) seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the MSCI ACWI IMI. Investors can invest directly in SPGM.
- The S&P 500 Index is an unmanaged index of 500 common stocks chosen for market size, liquidity, and industry group representation. It is market-value weighted. The S&P 500 Index figures do not reflect any fees, expenses, or taxes. Investors cannot invest directly in this index.
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