

Next Economy Select

June 30, 2023

Green Alpha[®]

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Investment Philosophy

The greatest growth drivers of today's economy are high-functioning, inventive companies creating and accelerating solutions to system-level risks—the climate crisis, resource degradation, widening inequality, and human disease burdens. Those companies are our best investment opportunity to preserve and grow clients' capital.

Green Alpha's philosophy is simple: seek enterprises creating scalable and rapidly evolving, economically-competitive solutions, rigorously evaluate their fundamentals, and acquire them at reasonable valuations.

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



Why Invest in Next Economy Select?

- Active research, stock selection, and portfolio mgmt
- Very low minimum purchase of 1 ETF share provides democratized access to institutional-quality investing
- Seeks long-term capital growth to preserve and grow purchasing power
- 45-65 global, market-leading companies developing solutions to core economic and environmental risks

Inception Date: March 31, 2013

Vehicles: AXS Green Alpha ETF (ticker NXTE) and Separately Managed Accounts

Research

Across our portfolios, we seek companies:

- with products and/or services lowering the global economy's risk profile by creating solutions to our most pressing economic and environmental risks
- committing more capital to R&D and owning more intellectual property than their peers
- run by effective, diverse executive teams and boards of directors with track records of increasing revenues and expanding margins, leading to earnings growth
- exhibiting sound financial fundamentals and capital custodianship
- trading at compelling valuations relative to proven and anticipated growth, within acceptable levels of risk

Portfolio Construction

The Next Economy Select's objective is long-term capital appreciation via investing in a diverse set of high-conviction, marketing-leading Next Economy companies that have competitive moats protecting and growing market share.

Green Alpha's Next Economy Select portfolio provides democratized, low-minimum investment access to institutional-quality, innovation-focused investing.

Largest Positions

How the Next Economy Select portfolio is driving progress toward the Next Economy

Applied Materials *(Sector: Technology, Industry: Semiconductors)*

- Applied Materials (AMAT) is an American corporation that supplies equipment, services, and software for the manufacture of semiconductor chips for electronics, flat panel displays for computers, smartphones, televisions, and solar products.
- They are a leading supplier of semiconductor manufacturing equipment, and its products are used by some of the world's largest semiconductor companies, including Intel, Samsung, and Taiwan Semiconductor. Their equipment is used in the fabrication of integrated circuits, which are the building blocks of electronic devices. AMAT is a global leader in materials-engineering solutions used to produce virtually every new chip and all advanced displays worldwide.
- The company has a strong intellectual property portfolio, with over 57,000 patents granted or pending worldwide. The company's patents cover a wide range of technologies, including semiconductor manufacturing, flat panel display manufacturing, and solar cell manufacturing.
- Applied Materials is targeting 100% renewable energy use by 2030, with an interim goal of 100% renewable energy use in the U.S. by the end of fiscal 2022.
- Executive management includes women in key seats: the Chief Legal Officer and Chief Human Resources Officer. Their board of directors is comprised 30% of women, including Chairs of the Audit Committee and the Governance and Nominating Committee.

Taiwan Semiconductor Manufacturing *(Sector: Technology, Industry: Semiconductors)*

- Taiwan Semiconductor Manufacturing Company (TSMC) is a Taiwanese multinational semiconductor contract manufacturing and design company. It is the world's largest dedicated independent (pure-play) semiconductor foundry.
- TSMC is a contract manufacturer, which means that it does not design or sell its own chips. Instead, it manufactures chips for other companies, including Apple, Qualcomm, and NVIDIA. TSMC's customers include some of the world's largest technology companies, and the company's chips are used in a wide range of products, including smartphones, computers, and cars. TSMC is by far the largest semiconductor foundry in the world with 54% market share overall and 92%+ market share of the world's most advanced chips. It is one of two companies capable of producing advanced 3-nanometer tech and is planning to produce 2-nanometer chips in 2023.
 - Being first to the 2nm node gives pricing leverage: TSMC is reportedly planning to charge \$25,000 per 2nm wafer.
- Their new Arizona plant will make advanced 3-and-5-nanometer transistors. The factory is expected to be operational by 2024, and it will be TSMC's first fab in the United States.
- The company features strong fundamentals, including a fortress-like balance sheet and outstanding credit ratings.
- TSMC's executive team includes several women in positions of high authority, including the President of TSMC Europe.

Brookfield Renewable *(Sector: Utilities, Industry: Electric Utilities)*

- Brookfield Renewable is a leading renewable power company that owns and operates a portfolio of solar, wind, and hydroelectric power generation and storage facilities in North America, South America, Europe, and Asia.

Brookfield Renewable, JinkoSolar Holding, and Vestas Wind Systems' Next Economy attributes are described on the following page.

Company Name	Weight
Applied Materials	4.43%
Taiwan Semiconductor Manuf.	4.17%
Brookfield Renewable	4.03%
JinkoSolar Holding Co.	4.02%
Vestas Wind Systems	3.94%
First Solar	3.93%
ASML Holding	3.54%
IBM	3.54%
CRISPR Therapeutics	3.53%
Moderna	3.43%
% of Portfolio	38.56%

Largest Positions *continued*

Brookfield Renewable *continued*

- Brookfield is one of the largest renewable power companies in the world, with a portfolio of 8,000 generating facilities, representing over 24,000 megawatts of generating capacity. The company's mission is to provide sustainable energy solutions that help people and businesses thrive. They are committed to developing and operating renewable energy projects that are environmentally responsible, socially beneficial, and economically viable.
- Brookfield is conservatively managed, continually looking for acquisitions at favorable prices and organic development to grow generation capacity, and has revenues largely backed by long-term power purchase agreements (PPAs). Brookfield is inflation resilient and may benefit from an inflationary environment, because their generating costs are fixed but their PPAs are indexed to inflation.
- Women comprise 30% of board directors (including the Audit Committee Chair), 25% of overall workforce, and 26% of the exec team. The exec team has a robustly above-average age spread of 48 years, as does the board at 38 years.

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

- JinkoSolar (JKS) is one of the world's largest solar panel manufacturers and the most vertically integrated, making ingots, cells, panels, and modules. JKS distributes to 160 countries and manufactures products in the U.S., China, Malaysia, and Vietnam, thus mitigating political and trade dispute-related growth obstacles. They have been able to largely withstand recent global supply chain disputes.
- JinkoSolar's production capacity is expanding. In 2021, the company had a total production capacity of 55 GW. By the end of 2023, JinkoSolar expects to have a total production capacity of 90.0 GW, roughly enough to power 68 million homes.
- In November 2022, the maximum solar conversion efficiency of JinkoSolar's 182 mm N-type module reached a new record of 23.86%.
- Of the world's top five PV manufacturers, JKS 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.
- 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.
- JKS 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.

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

- A front runner in the global energy transition, Vestas is the world's most advanced wind turbine manufacturer, and the global leader in onshore, offshore, and grid-connected installations. Vestas is also a leading service contract provider, furnishing the company with meaningful higher-margin recurring revenue.
- Vestas' turbine order backlog is over \$21 billion and its service order backlog is over \$34 billion, equaling a total backlog of \$55 billion. New order intake has accelerated into 2023, with 3.022 GW in new orders in Q1 alone, and the service segment continues to gain momentum.
- They have 150+ GW under service contracts, with 125+ GW located offshore. The average service contract duration is 10 years, providing a long runway of revenue transparency.
- Goals include carbon neutral operations—without use of carbon offsets—by 2030 and zero-waste wind turbines by 2040.
- Vestas' board is comprised of five women (42%). Of the 12 members, eight were elected by shareholders and four were elected by Denmark-based employees. Women serve on all committees and comprise half of the Nomination & Compensation Committee.

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

Macroeconomic Commentary



2023 so far has been characterized by volatility, both up and down. Markets have managed to remain positive in aggregate. Some of the reasons for this volatility are well known, starting with the domestic economic environment. The much-anticipated recession, still said to be imminent, has not materialized despite two years of prognosticators' predictions. Unemployment is remarkably low, and wages have been increasing across income levels. Inflation continues, albeit at a moderated 4% annual pace, which is still above the Fed's ideal target, and this in turn adds uncertainty to markets that are having difficulty determining how many and how large additional Federal Reserve rate hikes to price into their models. Generally though, a more robust and still growing economy with greatly attenuated inflation is in principle modestly bullish for stocks.

Then there is the geopolitical environment. Ian Bremmer, founder of the Eurasia Group, believes that a rogue-state Russia is by far the greatest geopolitical risk currently facing the world. It is impossible to argue his point. In a [recent podcast](#), Bremmer points to a recent incident where a Russian fighter jet [mistakenly fired](#) on a British aircraft, and all that prevented the deaths of 17 British service men and women was the malfunction of the Russian missile. Bremmer uses this example to point out that as long as the Russian invasion of Ukraine endures, we are a hair's breadth away from an incident that would provoke a shooting war between NATO and Russia, adding along the way that Russia has more nuclear weapons than any nation on Earth.

The second major geopolitical risk is the ongoing deterioration of the relationship between the United States and China—the world's two largest economies. This deterioration is meaningful in terms of its threat to economic growth, as it impacts not only trade, but also innovation and productivity. In the United States, the bipartisan clamoring to “get tough on China,” and in China, increasing authoritarianism and the regime's desire to be the key regional superpower in Southeast Asia, have led to an atmosphere of distrust and uncertainty, and subsequently to both punitively motivated and risk-hedging steps towards economic decoupling. We view this as dangerous through the framing of the [Thucydides trap](#): historically, when nations have moved to separate themselves from one another economically and taken active steps to throttle the development of a rival, it has often led to open war.

Relative to the desired outcomes of economic growth and stability, [Green Alpha Investments](#) would much prefer to see stabilization in the US-China relationship, and even active collaboration in areas where the two nations are in agreement, such as the need to address the climate crisis and to find ways to spur economic growth amid declines in working age populations. In that environment, areas where there is disagreement can be addressed far more constructively. Barring such a de-escalation, escalating tensions present risks for investors.

Given all the above, it should not be surprising that investors globally are sitting on [near record levels of cash](#). That the markets have risen at all in 2023 should, if anything, be the surprise. So, why is that?

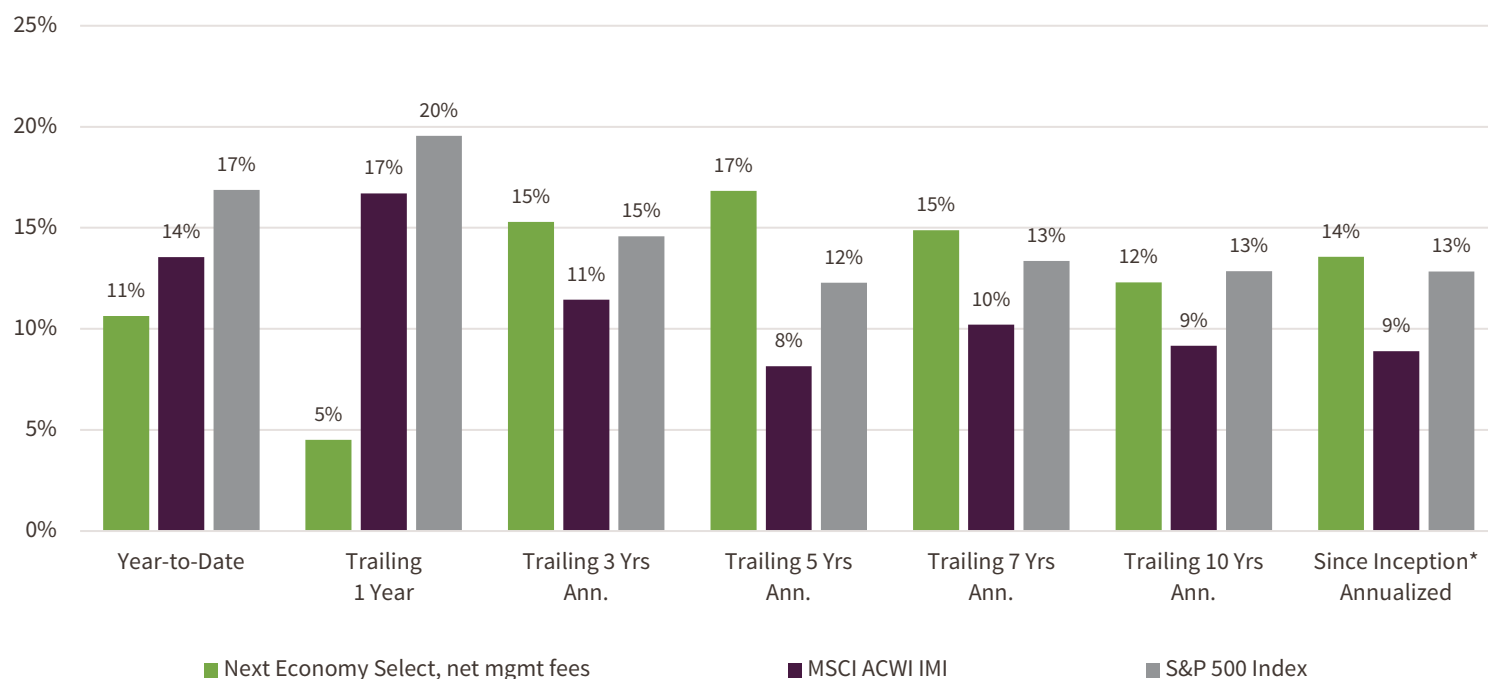
Despite these very significant risk overhangs, there are many positive developments, particularly in the United States, which is [growing its economy](#) rapidly relative to other developed nations and has also managed to do a [better job taming inflation](#) than most of its peers. Most notably, the growth in the U.S. economy revolves around significant new construction to support the build out of new, large-scale manufacturing. A significant share of this [production boom](#) is in

- semiconductor manufacturing,
- manufacturing for renewable energy,
- batteries for energy storage and electric vehicles, and
- increased domestic production of electric vehicles themselves.

All this is creating well-paying jobs and driving economic growth. We can't help but note that all these bullish trends are occurring within areas we have always defined as key [Next Economy](#)[™] sectors and industries.

We continue to believe that this dynamic will continue: most economic growth will be derived from innovations that are economically competitive and that simultaneously solve problems, helping to de-risk the world. This is the underlying thesis of Green Alpha's Next Economics[™], and, as complicated and nuanced as things are, we believe the current geopolitical and economic environment is providing elegant validation of that thesis.

Portfolio Performance & Commentary



For the first half of 2023, the Next Economy Select strategy returned 10.63% net of management fees, versus its benchmark, the MSCI All Country World Investable Market Index (MSCI ACWI IMI), which returned 13.55%.

The sectors contributing the most to the strategy's returns were Technology and Consumer Discretionary.

- The Technology sector dominated contributions, with the semiconductors and technology hardware industries being the standout performers. Semiconductor manufacturer contributions were the leading area in the strategy with especially significant returns during Q1 and additional contributions during Q2. Also contributing were advanced chip providers, especially those providing chips for AI and communications, with analog devices and power control chipmakers contributing as well. Gains were also boosted by consumer electronics, and by software, primarily for digital security.
- In Consumer Discretionary, EV automotive manufacturing was the largest contributing industry. An advanced battery maker and leading sustainable office furnishings provider also boosted returns, although those gains were partially offset by a sustainable flooring provider.

The Real Estate and Energy sectors are the ones that detracted from the strategy's returns.

- The Real Estate sector detracted the most from the strategy's returns, with declines led by office REITs and specialty REITs (see [here](#) for Green Alpha's discussion of current REIT market dynamics, and why we believe not all office REITs are created equal). The losses in office REITs were partially offset by gains in data center REITs.
- The Energy sector only detracted a moderate 0.19%; however, losses came from several renewable energy verticals, including wind energy equipment manufacturing, America's leading residential solar installation company, a leading commercial solar provider, and the world's two leading solar inverter makers. These losses were mostly offset by gains in two leading solar PV makers, one of traditional c-Si panels, and the other a thin-film CdTe PV panel maker.

**Composite Inception: March 31, 2013. 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.*

Next Economy Select

How our portfolios compare to their benchmark, the MSCI All Country World Investible Market Index

Characteristics

- **Highest conviction stocks, two investment vehicles:** democratizing access to leading Next Economy companies via a mutual fund and separately managed accounts, providing clients of all shapes and sizes with institutional-quality options
- **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, and Current Ratio
- **Fossil fuel free since inception:** we have never invested in companies that prospect, extract, refine, or transport fossil fuels, nor in fossil-fired utilities or internal combustion engine manufacturers
- **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; largest opportunity for impact

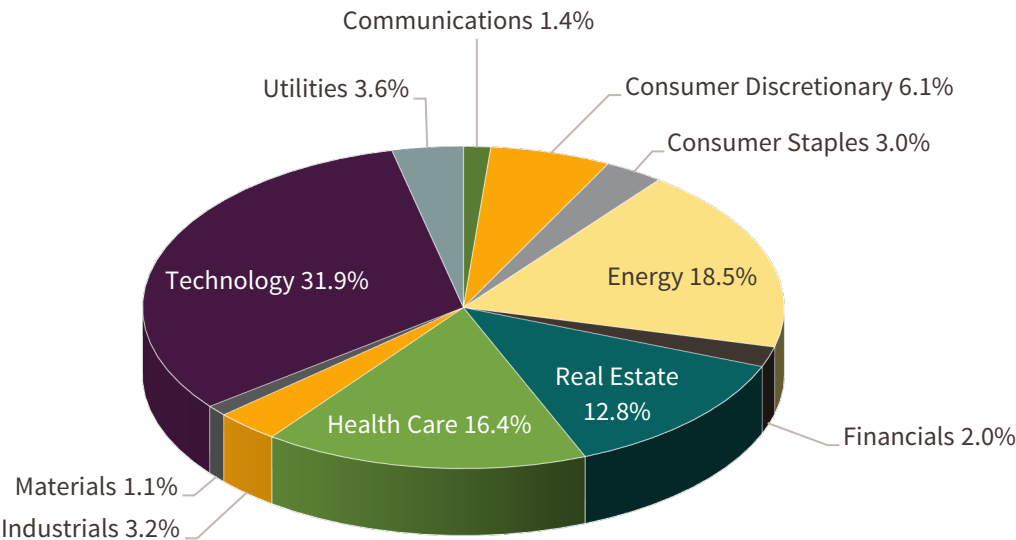
Characteristics	Next Economy Select	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Social Index	Growth & Income	Sierra Club Green Alpha	DiversiTerra
# of Securities	63	2,498	141	99	35	47	57
Active Share	96%	-	92%	94%	97%	96%	95%
Sales Growth, Trailing 3-Yr	36%	15%	45%	55%	23%	39%	47%
P/E, Current	16.9	17.2	21.8	24.5	16.0	20.6	22.3
P/E, 1-Year Forward	17.6	16.3	21.8	23.5	16.8	19.7	23.5
Price/Sales	1.6	1.7	2.1	2.1	1.6	1.2	1.9
Price/Book	2.2	2.5	3.1	2.9	1.8	2.4	2.5
LT Debt/Equity	301%	423%	220%	72%	71%	696%	80%
Current Ratio	3.9	2.8	3.2	3.8	2.7	2.7	3.3
Dividend Yield	1.90%	2.22%	1.14%	1.08%	4.28%	1.46%	1.49%
Market Cap, Wtd Avg (\$B)	\$126.54	\$407.10	\$116.98	\$121.06	\$95.06	\$135.62	\$134.43
Market Cap, Median (\$B)	\$4.18	\$2.67	\$9.20	\$9.71	\$33.17	\$11.40	\$7.13
Turnover, Trailing 2-Yr Avg	12%	Not Available	12%	21%	19%	9%	15%
Beta, Trailing 2-Yrs	1.37	1.00	1.27	1.31	1.21	1.32	1.31
U.S.-Domiciled Companies	65%	56%	77%	85%	65%	68%	81%
% Revenue Derived in U.S.	43%	43%	48%	53%	45%	44%	59%

All characteristics are sourced from FactSet, are based on a representative account and include cash. Please see the final page of this document for additional important disclosures.

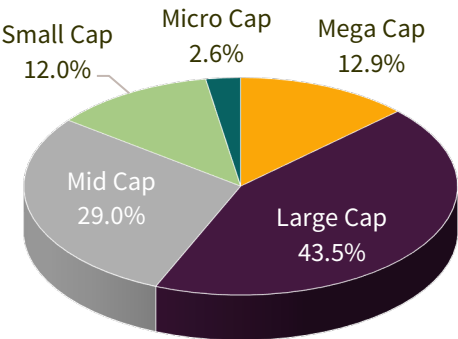
Portfolio Allocations

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

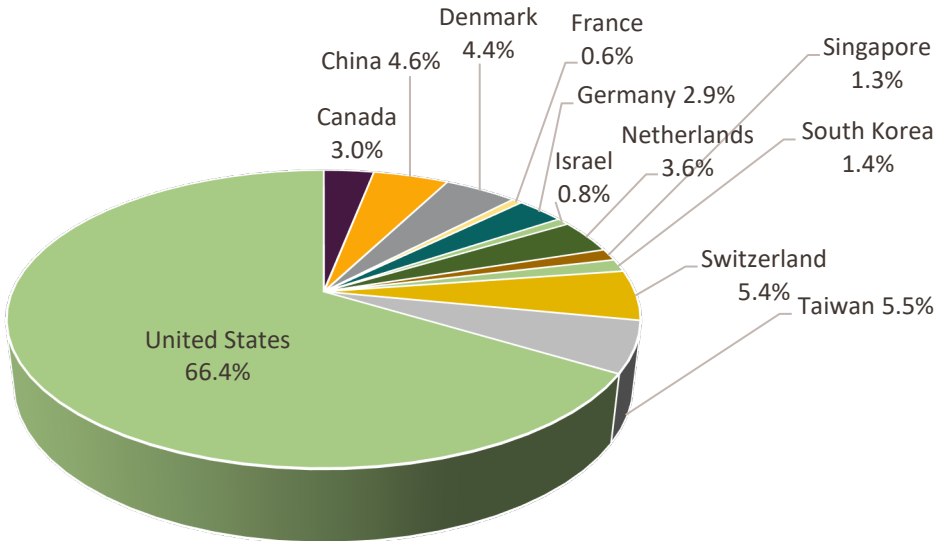
Economic Sectors



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.”
- Performance quoted throughout this document represents 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 May 31, 2023, composite membership includes a minimum account size of \$100,000. Next Economy Select performance results reflect actual performance for a composite, net of actual management fees and transaction costs. Some assets managed in the Next Economy Select strategy within the composite receive a reduced fee from the standard 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. Next Economy Select performance results do not reflect the reinvestment of dividends and interest. Extreme periods of underperformance or outperformance are due to the concentrated nature of the strategy and the impact of specific security selection. Such results may not be repeatable.
- From the strategy’s inception through June 30, 2021, performance data are sourced from Bloomberg Finance L.P. Beginning June 30, 2021, the composite and all performance results are maintained and calculated by Green Alpha’s portfolio accounting system Advent APX.
- 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/>.
- 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.
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- 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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