Next Economy Index

June 30, 2023

Green Alpha®

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Why Invest in the Next Economy Index?

- Active research and stock selection
- Passively managed through an annual rebalance
- Demonstrates the diversity, growth, breadth, and depth of the rapidly-developing Next Economy™
- ~141 global, market-leading companies developing solutions to core economic and environmental risks

Inception Date: December 31, 2008

Vehicle: Separately Managed Accounts

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.

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 Index utilizes active research and stock selection, and passive portfolio construction to reflect the Next Economy – the innovation-driven, highly efficient, solutions-oriented sustainable economy that is rapidly displacing the legacy economy.

All companies that pass Green Alpha's top-down and bottom-up research processes with sufficiently high proprietary scores are included in the Next Economy Index portfolio. All other Green Alpha portfolios contain subsets of companies held in the Next Economy Index.

Largest Positions

How the Next Economy Index is driving progress toward the Next Economy

Company Name	Ticker	Weight
NVIDIA Corporation	NVDA	2.21%
First Solar	FSLR	1.99%
Extreme Networks	EXTR	1.36%
Exact Sciences	EXAS	1.35%
Apple	AAPL	1.27%
Cadence Design Systems	CDNS	1.23%
Array Technologies	ARRY	1.21%
Flex Ltd	FLEX	1.19%
Pacific Biosciences	PACB	1.18%
Badger Meter	BMI	1.16%
% of Portfolio		14.15%

NVIDIA Corporation *(Sector: Technology, Industry: Semiconductors)*

- NVIDIA specializes in designing and manufacturing graphics processing units (GPUs) and system-on-a-chip units (SoCs).
- NVIDIA's processors are dominant in datacenters, machine learning, and AI. Their processors are used by many of the most advanced companies for advanced products and applications. NVIDIA is critical for cloud computing companies AWS, Google Cloud, and Microsoft's Azure, largely because its processors are among the fastest and highest throughput—factors that are key as cloud companies offer more AI-based capabilities. In addition, NVIDIA's advanced chips have become the backbone of processing for LLMs such as ChatGPT.
- NVIDIA's industry-leading software and hardware technology has made its products among the go-to options for leading edge applications. For example, to run ChatGPT and other AI applications, Microsoft Azure says they use up to "thousands of NVIDIA H100 GPUs interconnected by NVIDIA Quantum-2 InfiniBand networking."
- The company also provides professional-grade GPUs utilized in a wide range of industries, including automotive, aerospace, healthcare, entertainment, and gaming.
- Fully half of NVIDIA's executive officers and 25% of the board of directors are women, including the Compensation Committee Chair.

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

- First Solar manufactures CdTe thin-film PV solar panels and provides utility-scale PV power plants and supporting services, including finance, construction, maintenance, and end-of-life panel recycling. They employ rigid thin-film modules for its solar panels and cadmium telluride (CdTe) as a panel semiconductor.
- 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 performance results are an already-strong order flow and the passage of the Inflation Reduction Act ("IRA").
    - Under the IRA, First Solar could earn subsidies as high as 17 cents per watt of capacity, which is more than half of their reported production cost.
- The company plans 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 a vertically integrated manufacturing process providing the lowest carbon footprint and fastest energy payback time available.
- The board of directors is 25% women, including the Lead Independent Director and Audit Committee Chair. The Chief People & Communications Officer is also female. Importantly, the executive team boasts an above-average age spread of 32 years.

***Extreme Networks**, **Exact Sciences**, and **Apple's** Next Economy attributes are continued on the following page.*

Largest Positions *continued*

Extreme Networks *(Sector: Technology, Industry: Technology Hardware)*

- Extreme Networks is an American company that designs, develops, and manufactures wired and wireless network infrastructure equipment and develops the software for network management, policy, analytics, security, and access controls. Extreme Networks was founded in 1996 and went public in 1999. The company has grown rapidly in recent years, and it now has over 2,400 employees and customers in over 100 countries.
    - Their products are used by a wide range of businesses, including education, healthcare, government, and retail, are designed to help businesses improve their network performance, security, and flexibility.
- In addition, their cloud-based solutions help businesses to manage their networks more efficiently and securely.
- Company leadership is 25% female, including the Chief Legal, Administrative & Sustainability Officer, and the Senior Vice President of Talent/HR Chief Diversity & Inclusion Officer. The boards of directors is 29% women.

Exact Sciences *(Sector: Health Care, Industry: Medical Equipment & Devices)*

- Exact Sciences is a molecular diagnostics company specializing in the detection of early-stage cancers. The company's flagship product is Cologuard, a non-invasive stool DNA test for colorectal cancer. Cologuard has been shown to be more accurate than traditional screening methods, such as colonoscopy, and it is the first and only stool DNA test approved by the FDA for colorectal cancer screening. Exact Sciences' tests are covered by Medicare, Medicaid, and most insurers.
- In addition to Cologuard, Exact Sciences is also developing other molecular diagnostics tests for cancer. The company's pipeline includes tests for lung cancer, breast cancer, and pancreatic cancer. Exact Sciences is also working on developing a liquid biopsy test, which would be a blood test that could be used to detect cancer early.
- Exact Sciences is committed to making cancer screening more accessible and affordable. The company offers Cologuard through a variety of channels, including direct-to-consumer, physician offices, and health plans. Exact Sciences also offers financial assistance to those who cannot afford the test. Exact Sciences is a leading player in the molecular diagnostics market. The company is well-positioned to continue growing as demand for cancer screening increases.
- The board of directors is 40% women, including the Chairs of the Human Capital, and Corporate Governance and Nominating Committees. The Chief Laboratory Officer and the EVP of Human Resources are also women.

Apple *(Sector: Technology, Industry: Technology Hardware)*

- Apple is an American multinational company specializing in consumer electronics, software, and online services. Their hardware products include the iPhone, iPad, Mac personal computer, Apple Watch smartwatch, AirPods earbuds, HomePod smart speaker, and Apple TV digital media player. Apple's software products include the macOS, iOS, iPadOS, watchOS, tvOS, and audioOS operating systems, iTunes media player, Safari web browser, the iLife and iWork productivity suites, and the Final Cut Pro and Logic Pro video and audio editing software. Apple's online services include the iTunes Store, App Store, Apple Music streaming service, iCloud storage service, Apple TV+, and Apple Pay.
- Apple is a highly innovative company. It has been credited with popularizing the graphical user interface (GUI), the personal computer, the mouse, the digital music player, the smartphone, and the tablet computer.
- On the last day of Q2, 2023, Apple became the first company to close with a market valuation above UD$3 trillion. This is remarkable because the company is also a true sustainability leader – demonstrating that sustainability of operations is achievable even with very large scale. Sustainability initiatives include:
    - Renewable energy: Apple is committed to using 100% renewable energy .They have already achieved this goal at its corporate headquarters and data centers and are working on retail stores and manufacturing facilities.
    - Waste reduction: Apple is committed to reducing waste in its products and operations. The company has eliminated the use of single-use plastics in its packaging, and it is working to make its products more recyclable.
    - Using recycled materials: Apple uses recycled materials in its products, including recycled aluminum, plastic, and glass. They are also working to increase the amount of recycled materials in its products.
    - Efficiency: Apple is committed to making products and operations more efficient. They have made significant progress in reducing the energy consumption of its products and are working to do the same in operations.

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?

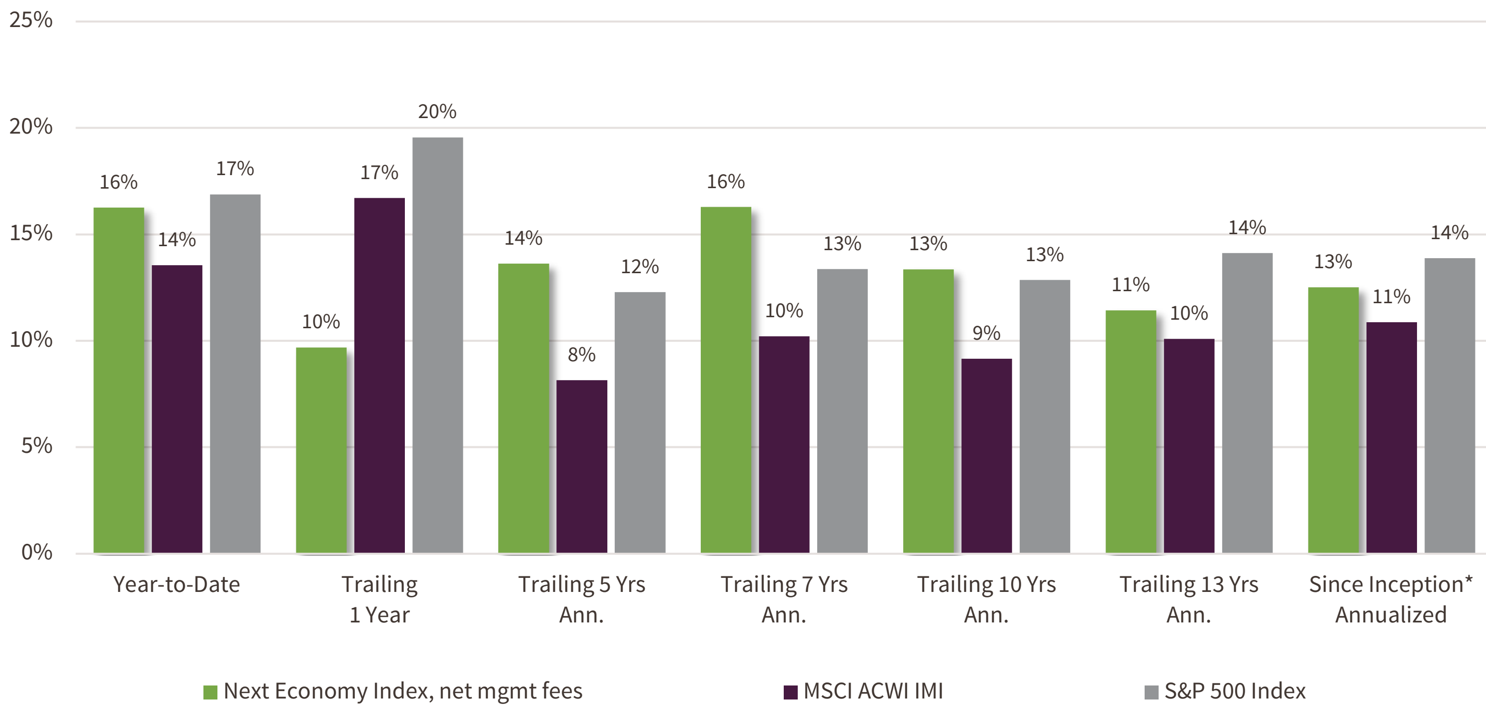
Despite these very significant risk overhangs, there are many positive developments, particularly in the United States, which is growing its economy rapidly relative to other developed nations and has also managed to do a better job taming inflation than most of its peers. Most notably, the growth in 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 Index returned 16.25% 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 Industrials.

- Within Technology, the semiconductors and tech hardware industries were the standout performers. Semiconductor manufacturer contributions were especially significant during Q1, but also contributed during Q2. Under hardware, advanced chip providers contributed the most, especially those providing advanced chips for AI. Analog chips also contributed, including power control technology, memory chip makers, and advanced display makers. The software industry had positive contributions during the first half, particularly security software, cloud software providers, and design/engineering SaaS providers.
- In the Industrials sector, intelligent meters for energy and water contributed the most to returns, followed by electrical components makers. Overall, returns were derived from growth in power and water infrastructure systems.

The Real Estate and Utilities sectors only detracted modestly from returns.

- The Real Estate sector declines were led by office REITs (see here for Green Alpha's discussion of current REIT market dynamics and why we believe not all office REITs are created equal), and secondarily by communications REITs, particularly those providing wireless communications infrastructure. These losses in office and infrastructure REITs were partially offset by gains in data center REITs, and specialty/industrial REITs.
- Within Utilities, the portfolio's exposure to the United States' most sustainable water utilities removed 0.14% from returns, and those losses were partially offset by gains in the world's largest pureplay renewables-based electric utility.

**Portfolio Inception: December 31, 2008. 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 Index

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

Characteristics

- **Largest Next Economy basket** – by definition, the Index is the most diversified Green Alpha portfolio by number of stocks; all stocks that pass Green Alpha's top-down and bottom-up investment processes enter the Index
- **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

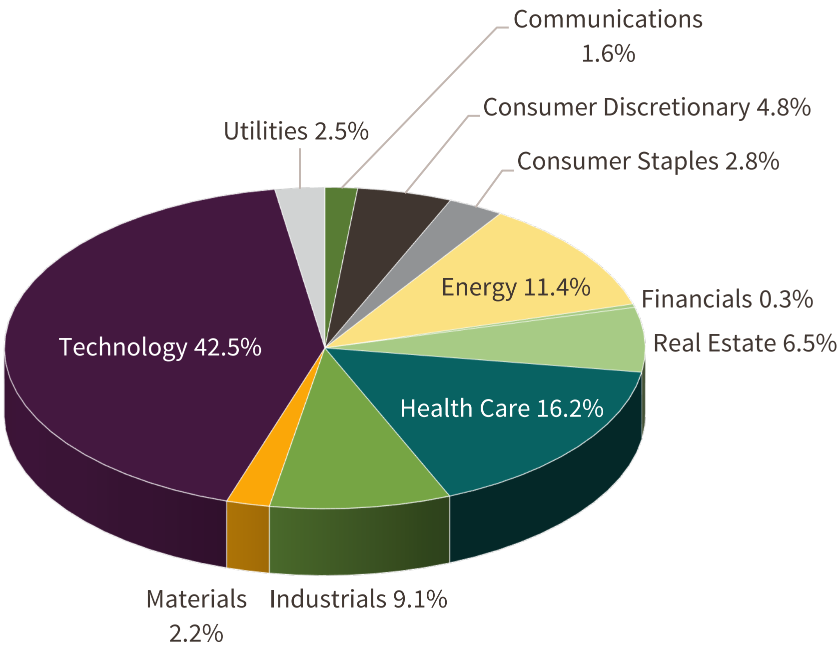
Characteristics	Next Economy Index	Benchmark: MSCI ACWI IMI (SPGM)	Social Index	Next Economy Select	Growth & Income	Sierra Club Green Alpha	DiversiTerra
# of Securities	141	2,498	99	63	35	47	57
Active Share	92%	-	94%	96%	97%	96%	95%
Sales Growth, Trailing 3-Yr	45%	15%	55%	36%	23%	39%	47%
P/E, Current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

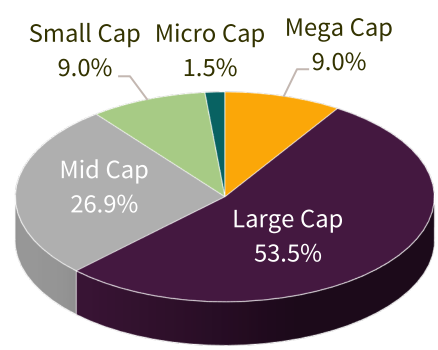
Portfolio Allocations

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

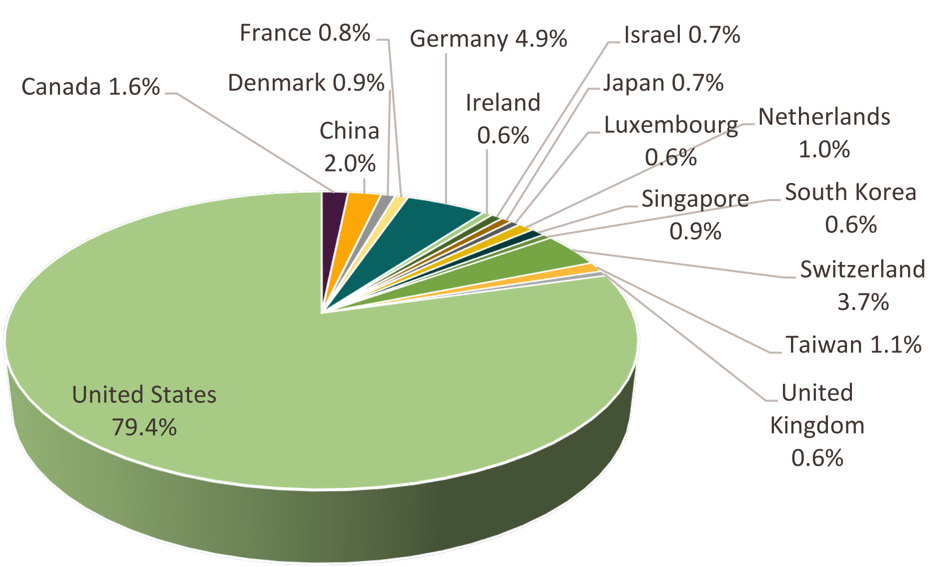
Economic Sectors



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

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- 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 November 30, 2021, the Next Economy Index 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 $75,000. The Next Economy Index 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 Next Economy Index 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 Next Economy Index 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, Next Economy Index performance results reflected the actual performance of a representative account, net of actual management fees and transaction costs. Assets managed in the Next Economy Index strategy representative account received a reduced fee from the standard fee schedule. Next Economy Index 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.
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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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