

Next Economy Index

December 31, 2021

Green Alpha®

Contents

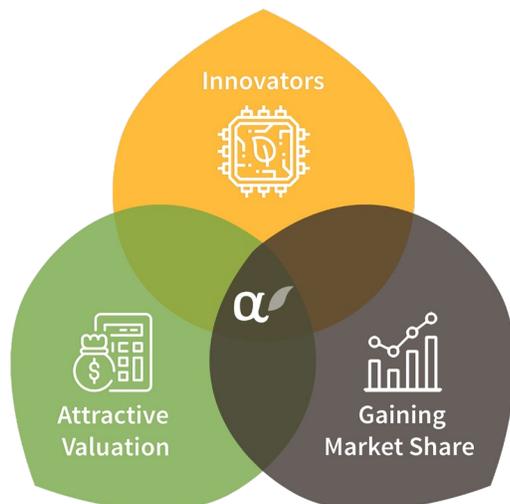
Portfolio Characteristics	2
Largest Positions	3
Sector, Geographic, and Market Cap Allocations	4
Investment Commentary and Performance	5
Disclosures	8

Investment Philosophy

We understand that high-functioning, innovative companies creating and accelerating solutions to system-level risks like the climate crisis, resource degradation, worsening inequality, and the human disease burden are the greatest growth drivers of the twenty-first century.

Green Alpha's investment philosophy is straightforward: don't invest in companies that cause global systemic risks; do seek out those creating smart, scalable and rapidly evolving, economically-competitive solutions.

We expect such companies to gain market share, which makes investing in them our best chance at preserving and growing our clients' purchasing power.



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™
- ~140 global, market-leading companies developing solutions to core economic and environmental risks
- Fossil fuel free since inception

Inception Date: December 31, 2008

Style: All-Cap Global Equities

Vehicle: Separately Managed Accounts

Portfolio Construction

The Next Economy Index utilizes both active stock selection and passive portfolio construction to reflect the Next Economy – the innovation-driven, highly efficient, solutions-oriented sustainable economy that is unfolding. All companies that pass both our top-down and bottom-up research processes with sufficiently high proprietary scores are included in the portfolio. 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 consistent track records of increasing revenues and expanding margins, leading to earnings growth and potential dividend increases
- that trade at compelling valuations relative to proven and anticipated growth, within acceptable levels of risk

Like all Green Alpha portfolios, Next Economy Index investments seek to de-risk the global economy, thus reducing our clients' long-term portfolio risks.

Next Economy Index

How the portfolio compares to the MSCI All Country World Investible Market Index (MSCI ACWI IMI) and other Green Alpha portfolios

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:** largest asset class; largest opportunity for impact

Characteristics	Green Alpha Next Economy Index	Benchmark: MSCI ACWI IMI (SPGM)	Green Alpha Next Economy Social Index	Green Alpha Next Economy Select	Green Alpha Growth & Income	Sierra Club Green Alpha
# of Securities	140	1,810	89	59	35	45
Active Share	93%	-	95%	96%	98%	97%
Sales Growth, Trailing 1-Yr	260%	55%	95%	280%	190%	445%
P/E, Current	27.08	19.07	30.58	22.97	20.46	28.27
P/E, 1-Year Forward [†]	23.50	17.14	27.02	21.37	20.72	24.21
Price/Sales	3.17	2.04	2.98	2.12	2.34	2.02
Price/Book	4.42	2.89	4.62	3.05	2.47	3.72
LT Debt/Equity	0.84	0.86	0.92	0.81	0.98	0.85
Current Ratio	3.07	1.96	2.71	3.80	1.88	2.56
Dividend Yield	1.63%	2.19%	1.72%	2.15%	2.89%	1.85%
Market Capitalization, Weighted Avg (US\$B)	\$122.13	\$412.68	\$120.31	\$146.71	\$78.92	\$132.91
Market Capitalization, Median (US\$B)	\$12.61	Not Available	\$13.31	\$8.80	\$30.92	\$15.54
Turnover, Trailing 2-Yr Avg Annual	22%	-	25%	7%	28%	20%
Beta, Trailing 2-Yrs	1.03	1.03	1.02	1.12	1.09	1.13

[†] Bloomberg consensus estimates. Please see the final page of this document for important disclosures about portfolio, benchmark, and characteristic information.

Largest Positions

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

NVIDIA (Sector: Technology)

- NVIDIA's processors are dominant in datacenters, machine learning, and AI. Their processors are used by many of the most advanced companies for hundreds of 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.
- Their industry-leading AI technology, computer graphics, and high-performance computing hardware and software has made its products among the most respected by IT professionals, and subsequently are always in high demand.
- The exec team is 40% women, including the CFO and EVP of Operations, and the board of directors includes three women.

BioNtech (Sector: Health Care)

- BioNtech is primarily engaged in developing vaccines and treatments for cancer and various types of infectious diseases.
- In oncology, BioNtech focuses on unique, individualized therapies targeted at the specific genotype of each tumor. They possess significant intellectual property, team talent and expertise, high quality partnerships, as well as solid financial fundamentals.
- Adding to its production capacity, BioNtech has acquired a manufacturing site from Novartis, adding annual production capacity of 750 million doses to their vaccine push. Although BioNtech delivered ~2.5 billion COVID-19 vaccine doses in 2021, we believe that the BioNtech-is-a-COVID-play narrative falls short of appreciating the company's long-term potential.

ASML Holding (Sector: Technology)

- World's leading provider of advanced photolithography systems, which are proprietary platforms of high-tech hardware and advanced software necessary in the manufacture of advanced integrated circuits. Among the most advanced etching systems, ASML is currently the only provider.
- Primary supplier of lithography to the world's key chip foundries, including Taiwan Semiconductor and Samsung. ASML's contributions to chipmaking are critical to these foundries; therefore, to the global economy. Advancements in extreme ultraviolet lithography machines have entrenched ASML's market share lead.
- Increased spending from the world's leading foundries, as well as those hoping to become leaders, is likely to increase revenues.

Atlassian (Sector: Technology)

- Provider of software to 200,000+ customers, surpassing \$2 billion in annual revenue. It is one of the world's primary platforms for software development from planning, coding, to support and end-user collaboration.
- Their exec team maintains strong capital allocation priorities with the collaboration software industry-leading level of R&D investment as a % of total revenues. They also achieved their goal of running global ops 100% on renewable energy in 2020.
- The exec team is 29% women, including the COO and CLO, and the board of directors includes three women, one of whom is the Board Chair. The firm is widely regarded as a top global employer in terms of culture and benefits, as well as in terms of the firm's commitment to the planet and social progress.

Moderna (Sector: Health Care)

- Discovery-to-clinical-stage biotechnology firm focused on using messenger RNA to develop and deploy therapies and vaccines. Moderna's revolutionary science has potential applications for many areas, including oncology, infectious diseases, and cardiovascular diseases.
- Robust early-and-advanced stage pipeline means future growth may be impressive even excluding revenues from a COVID-19 vaccine, although the vaccine has accelerated their time to profitability, as well as their ability to fund further research and trials. Interesting vaccines in their pipeline include those for HIV and CMV.
- Moderna is not just pioneering new medicines, but *new categories* of medicines, potentially transforming medicine overall.

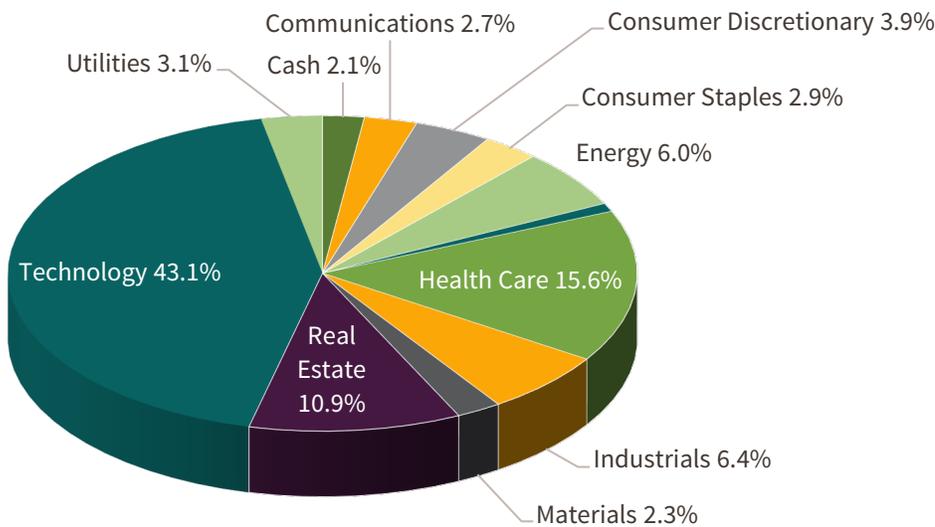
Company Name	Ticker	Weight
NVIDIA	NVDA	2.34%
BioNtech	BNTX	1.79%
ASML Holding	ASML	1.58%
Atlassian	TEAM	1.52%
Moderna	MRNA	1.52%
Fortinet	FTNT	1.43%
Apple	AAPL	1.41%
Prologis	PLD	1.34%
Marvell Technology	MRVL	1.31%
Zscaler	ZS	1.28%
% of Portfolio		15.52%

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

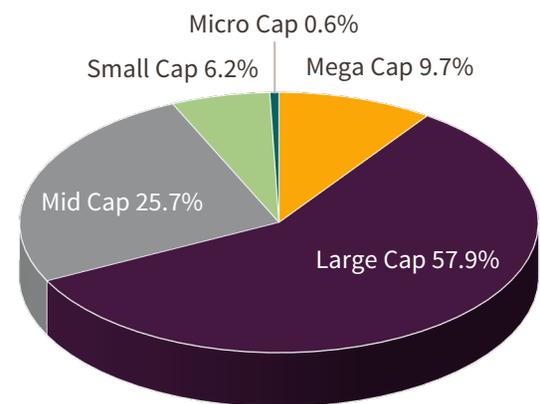
Portfolio Allocations

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.

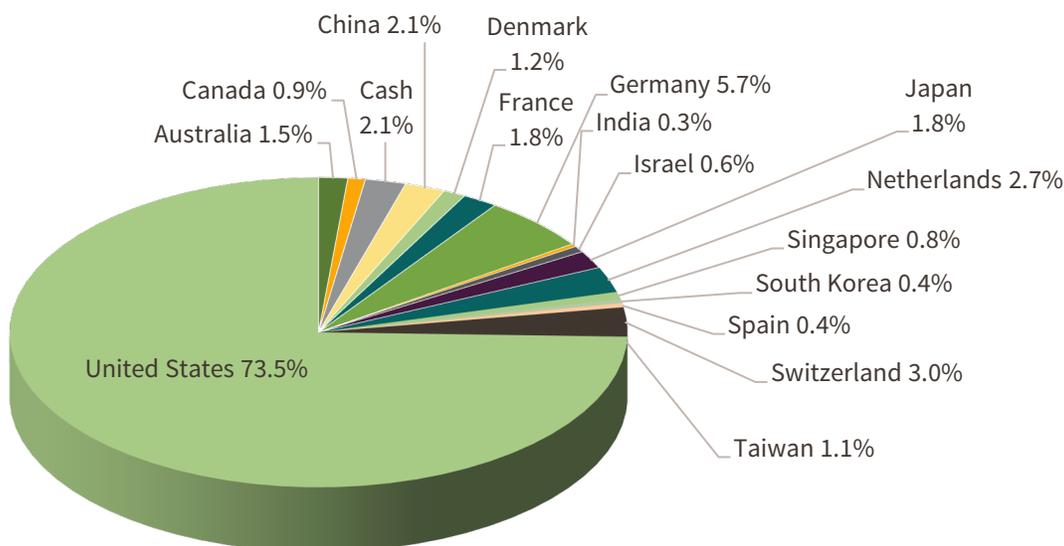
Economic Sectors ††



Market Capitalizations



Companies' Main Headquarters



†† Bloomberg Industry Classification Standard. Please see the final page of this document for important disclosures about portfolio, benchmark, and characteristic information.

Macroeconomic & Market Commentary

Where investments are made – where capital flows – defines what the economy is. What we purchase and use, how we use it, and how we power it: the whole economy emerges from where investments have gone to provide those things. The economy can become far less or far riskier as a result of our investment decisions, and asset allocators therefore have an outsized role in determining the course of the future.

Tying a bow on 2021, a fast-onset suburban fire in Boulder County, Colorado, Green Alpha's home, that in the span of hours destroyed upwards of 1,000 homes and businesses, was to most of the world one more scrap of data in another year full of climate change-related disasters. For us, it was more personal, causing an evacuation of our office and some employees' homes as smoke blew in and ash fell; we are grateful that the entire Green Alpha team and our families are safe and well. As of this writing, our office is in a location that was under a strict evacuation order. Science has long predicted events like this would become more common and more intense, and that the stability of nature should no longer be taken for granted. Science is doing its part, but investment management has largely ignored scientists' warnings, and; therefore, it remains a weak link in working toward de-risking our collective future. How the asset management industry mounts a response to climate change, via that industry's function of deploying capital, is the proverbial hand on the dial that will in part determine the frequency and severity of more extreme events.

Our Portfolios in 2021 and Looking Forward

2021 was a year of market underperformance for Green Alpha's strategies (see [Portfolio Snapshots](#) for detailed performance numbers and commentary). As we discuss below, we believe our thesis represents a reliable path forward in terms of preserving and growing our clients' purchasing power, and that it will, over the longer term, prove effective over market cycles of inflation, deflation, stimulative policy, cooling policy, and as economic narratives real and imagined rise and fall. Whether or not you find yourself concerned about our 2021 relative underperformance, read on to learn how we're looking forward.

It starts with the flexibility to source ideas wherever they occur, to be "go anywhere" in the service of finding attractive investments, and then doing the deep work of evaluating a company on its intrinsic merits. Plumbing the complexities of a company's business and how it fits into the context of the world's economic and environmental systems is harder and more complex than is looking uncritically at P/E ratios and ESG ratings. Yet it is work we like to do, because it has become so critical to analyze the actual position of a firm relative to the evolving complexities of the global environment and everything within it, including the economy. If we try to reduce ourselves to algorithmic rules, we eliminate the ability to be flexible in the face of change. In a time of accelerating risks, we can no longer assume simple ratios are telling us all that we need to know about our investments; we need to look deeper.

Companies delivering better business performance often outperform markets in general^{i,ii} but investing based on business results requires patience, because news and zeitgeist narratives can drive market valuations more than fundamentals, sometimes for substantial periods of time.

For example, consider solar PV manufacturing. Solar exists in a fast-growing market for electricity, it is in demand because it is a zero-carbon source of electricity that is also cost competitive with any other source of electricity generation, and it can be profitably deployed almost anywhere, even at high latitude nations like Germany. As a result, solar is gaining market share from legacy sources at a rapid rate and it is doing so in a fast-growing TAM. The better-run solar manufacturers are growing revenues, expanding their production capacities, earning operating leverage to expand their

ⁱ Joseph D. Piotroski, *Journal of Accounting Research* Vol. 38, Supplement: Studies on Accounting Information and the Economics of the Firm (2000) <https://www.jstor.org/stable/2672906>

ⁱⁱ Clifford S. Asness, Andrea Frazzini, and Lasse H. Pedersen, *Quality Minus Junk* (2013) http://www.econ.yale.edu/~shiller/behfin/2013_04-10/asness-frazzini-pedersen.pdf

Commentary *(continued)*

margins, and using their newfound scale and credibility to lower their costs of capital. And yet, market multiples of these companies remain stubbornly low. Why? Partially due to genuine short-term concerns about supply chains and interest rates, but largely because of the common narrative. It is often said that solar is niche, it won't work because it is intermittent, Solyndra was a disaster, solar isn't core energy, it is an alternative. These and similar arguments are still surprisingly common in markets, and even embedded in our systems. For example, solar isn't considered "energy" in MSCI's Global Industry Classification Standard ("GICS"), but rather it is defined as "technology."

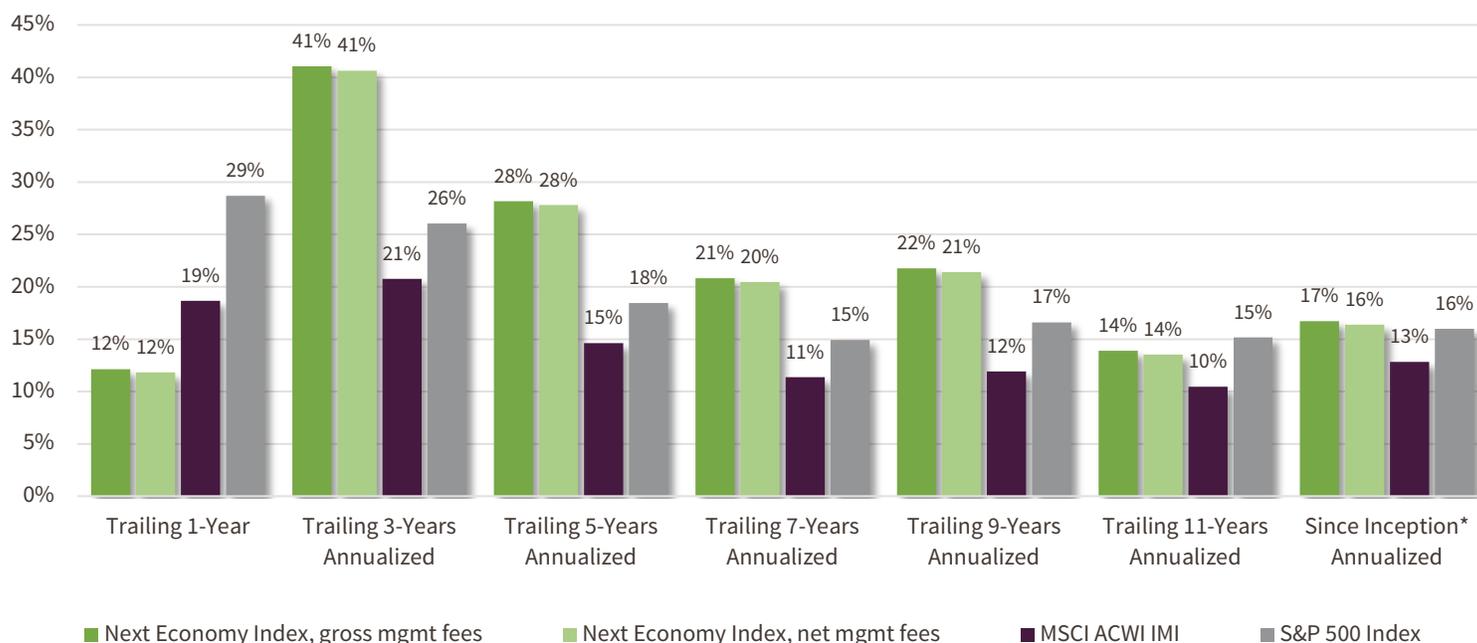
But while narratives matter in the short and sometimes medium terms, it is business results and overall fundamentals that drive returns in the long run. Business results-based returns, which come from reinvestment of retained earnings into expansionary pursuits such as growing production capacity, improving production efficiencies, and aggressive spending to drive innovation, are more predictable and enduring than momentum or multiple-expansion-based returns. Companies capable of sustaining stronger-than-average business results over time are more likely to reward investors. Which is why we focus on the Next Economy™. It is our job to find what ideas are most likely to work, become much larger and more profitable, and still be effective and valuable in the face of the climate crisis, resource degradation, worsening inequality, and mounting human disease burdens. Among the companies delivering on these ideas, we research which own the most and best intellectual property ("IP") for safely running the global economy, and which best manage their capital for intrinsic growth. Summed into one question, Green Alpha wants to know: Will this business enable us to thrive on the planet without disrupting the systems on which we rely? When we identify conviction firms, we can find value, tactically, in periods when the narrative turns against Next Economy companies.

This has been, is, and will be our focus. We won't deviate from this thesis when the news narrative turns against one of our conviction sectors, industries, or companies. In 2021, the narrative was negative towards renewable energies, some advanced biotech companies, and disruptive innovation in general. Since we believe that science, research, and innovation are how we are solving – and will continue to solve our biggest challenges – we were often in disagreement with the 2021 zeitgeist. It is abundantly evident today that we live in what author [Azeem Azhar](#) has dubbed the Exponential Age, and neither economists nor asset managers can continue to assume that the economy will continue to slowly progress as an extension of the economy we already know. Rather, Green Alpha can devise new processes and implement systems to follow to make our methodologies as adaptive as possible. For this, we gain valuable insights from the disciplines of predictive modeling and scenario planning: assimilate as much macro and micro information as possible and develop an educated thesis that represents a probable set of outcomes for a given company, industry, sector, and/or the economy as a whole.

Within all of this, one thing is clear to us: future demand – and thus market returns – can expect to be correlated with the structural trend of climate change. As Nicholas Stern has reminded us, "climate change is the biggest market failure the world has ever seen." In the context of [Herbert Stein's](#) Law, "trends that can't continue, won't," we can use this to plot a path forward. By targeting the intersection of the most economically productive yet nondestructive (*and ideally regenerative*) innovations, excellent fundamentals, and careful capital custodianship, we're adding waypoints to that path. Green Alpha is striving to set the standard for what asset management can and should do to realize a regenerative, zero-risk economy, and to earn competitive returns as that economy expands.

Next Economy Index portfolio-specific reflections follow on the next page

Performance & Commentary



In 2021, Green Alpha's Next Economy Index strategy returned 11.82% net of management fees vs. its benchmark, the MSCI All Country World Investible Market Index (MSCI ACWI IMI), at 18.66%.

The portfolio's top-contributing sectors for the year were Technology and Real Estate.

- Within the Technology sector, gains were led by advanced technology chip designers and semiconductor manufacturing companies, as they benefited from remote work, learn-from-home, and Internet of Things growth, along with increased pricing power from the global semiconductor shortage. Their focus on wireless connectivity, artificial intelligence, and security, in turn made devices more intelligent, connected, energy efficient, and secure.
- In the Real Estate sector, returns from data center real estate trusts contributed, as those businesses benefited from the heightening reliance on technology and acceleration in the digital transformation strategies by enterprises of all kinds. Finally, along with the fast adoption of e-commerce, logistics real estate outperformed due to raised inventory throughputs.

The two sectors that detracted the most from the portfolio's returns were Energy and Health Care.

- The Energy sector modestly detracted from returns as residential solar companies underperformed, largely due to policy setbacks, and stock market sentiment against renewable energies was strong during the year, causing overall renewable energy company share prices to decline despite many having strong business results. In general, inflation fears and policy setbacks made both innovation and the transition to wind and solar seem less interesting to Wall Street during the calendar year. Green Alpha believes that the global energy transition is now in full effect and won't be reversed, and that these market headwinds will prove transitory.
- The Health Care sector, which includes meaningful weight on advanced biotech stocks, also detracted from returns due to the markets' rotation to value stocks during an uncertain time (not dissimilar to renewable energy-as-innovation). These losses were partially offset by gains in vaccine makers and select gene therapy companies.

**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 important disclosures about portfolio, benchmark, and characteristic information.*

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 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. The Next Economy Index composite performance results reflect actual performance for a composite of discretionary client accounts, 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 Advisors, LLC. 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.
- Regardless of time frame, all characteristics data are sourced from Bloomberg Finance L.P. based on the representative Next Economy Index account, which may or may not be exactly what is delivered on each custodial or wrap account platform.
- 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.
- This presentation is for informational purposes only, and should not be construed as legal, tax, investment, or other advice. This presentation does not constitute an offer to sell, or the solicitation of any offer to buy, any security. Any mention of an individual security is for illustrative purposes only and should not be considered a recommendation to buy or sell any security. The presentation does not purport to contain all the information that may be required to evaluate Green Alpha Advisors and its investment strategies.