

# Next Economy Social Index

December 31, 2021

## Green Alpha<sup>®</sup>

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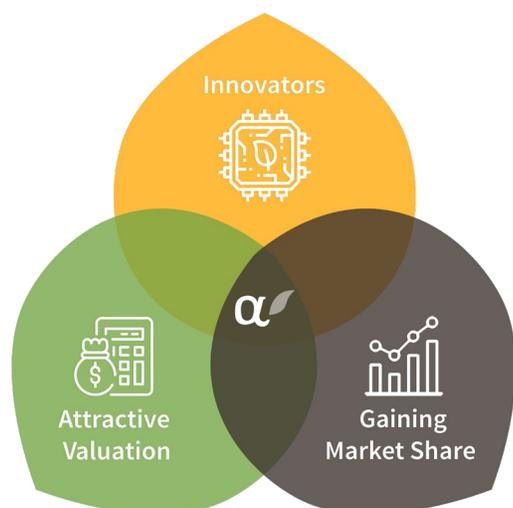
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### Investment Philosophy

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 Next Economy™ 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 Social Index?

- Active research and stock selection; passively managed through an annual rebalance
- Uniquely rigorous gender and social inclusion criteria to create a powerful one-two punch of innovative companies led by diverse, empowered teams
- ~89 global, market-leading companies developing solutions to core economic and environmental risks
- Fossil fuel free since inception

**Inception Date:** December 31, 2015

**Style:** All-Cap Global Equities

**Vehicle:** Separately Managed Accounts

### Portfolio Construction

The Social Index construction is based on the science that the cognitive capacity, execution abilities, and risk management skills of groups exceeds that of individuals, and the more diverse the group, the greater potential. Diverse teams make better long-term decisions. To manage the portfolio, we start by seeking 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 with track records of increasing revenues and expanding margins, leading to earnings growth
- that trade at compelling valuations relative to proven and expected growth, within acceptable levels of risk

We set initial weights by market cap., then assign additional weighting to companies where women hold significant decision-making authority, have especially strong leadership representation, and/or have implemented policies that are eminently inclusive of all demographics.

# Social Index

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

## Characteristics

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

<sup>†</sup> Bloomberg consensus estimates. Please see the final page of this document for important disclosures about portfolio, benchmark, and characteristic information.

# Largest Positions

How the Social 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 state-of-the-art 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 are 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.

## **Arista Networks** (Sector: Technology)

- Arista Networks is a computer networking company providing networking solutions for hyper-scale data centers for customers like Microsoft. The company primarily designs and sells multilayer network switches, but ANET is an attractive solution provider because it additionally offers a software operating system for managing rapid growth of large and hyper-scale centers.
- Their proprietary Extensible Operating System (EOS) runs ANET's fleet of switching and routing products, enabling clients to deploy an integrated and efficient network across public, private, and hybrid-cloud environments. ANET offers a leading cybersecurity suite, Arista NDR (Network Detection and Response) platform, which is part of their zero-trust security positioning.
- Executive leadership is comprised of 29% women, including the President and Chief Executive Officer, and Chief Financial Officer.

## **Atlassian** (Sector: Technology)

- Provider of software to 200,000+ customers, surpassing \$2 billion in annual revenue. Atlassian is a high-quality productivity SaaS market leader key to workplace collaboration and application development. 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, and the board of directors includes three women, one of whom is the Board Chair. They are widely regarded as a top global employer in terms of culture and benefits, and commitment to the planet and social progress.

## **Apple** (Sector: Technology)

- The hardware, software, content, experience, and marketplace provider continues to be one of the best and most sustainably run large companies in the world. Evergreen and resilient demand for products and services was once again on display in 2021 as revenues accelerated, only partially slowed by supply chain issues. Apple's massive ecosystem of ~1.8 billion devices present large opportunities for the company to drive revenue growth and margin expansion with low marginal cost new services.
- The AR and electric/autonomous vehicle projects don't yet seem to be reflected in the share price.
- Apple's commitment to net-zero everything (carbon, water, waste, energy production), and their investments in cutting-edge tech like carbon removal and 100% recycled aluminum is a strong example to the world and a key counter argument to companies who argue they are too large or complex to operate sustainably.

## **Palo Alto Networks** (Sector: Technology)

- Palo Alto's cybersecurity offering centers around its advanced firewall, which is a combination of physical devices and software/virtual services. PANW has had success growing revenue with their leading firewall by then upselling customers additional services Prisma, its cloud security suite, and Cortex, its AI-powered threat detection engine. All these have been strong sellers in the current environment of cyber-attacks and ransomware intrusions.
- The management team is 33% women, including the CMO, CHRO, Chief Customer Officer, and Deputy CFO.

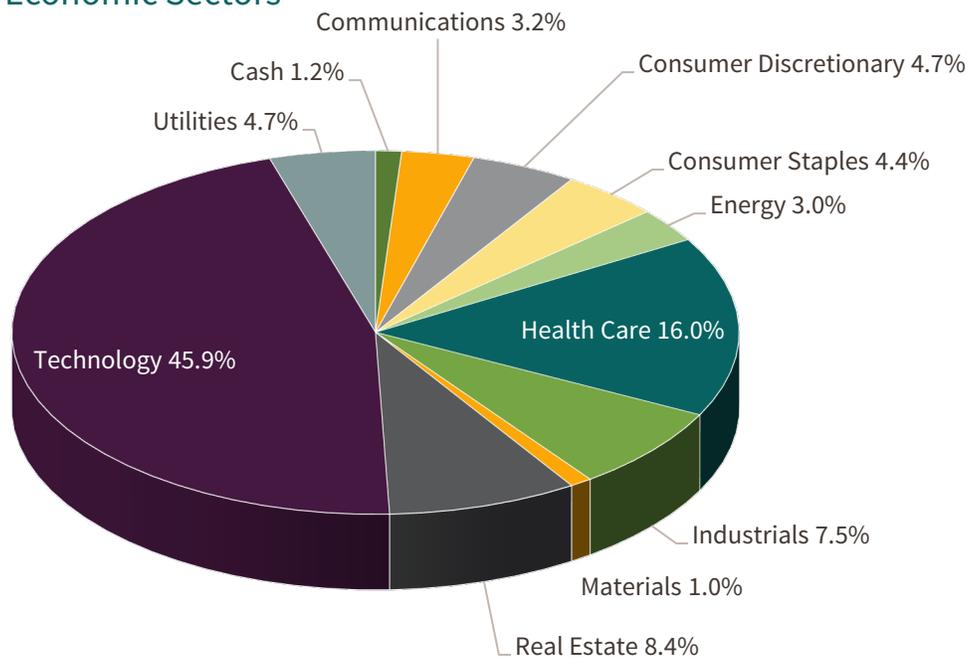
Company Name	Ticker	Weight
NVIDIA	NVDA	2.80%
Arista Networks	ANET	2.26%
Atlassian	TEAM	2.25%
Apple	AAPL	1.94%
Palo Alto Networks	PANW	1.87%
Box	BOX	1.86%
Switch	SWCH	1.84%
Dassault Systemes	DASTY	1.85%
American Water Works	AWK	1.79%
Iron Mountain	IRM	1.77%
<b>% of Portfolio</b>		<b>20.22%</b>

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

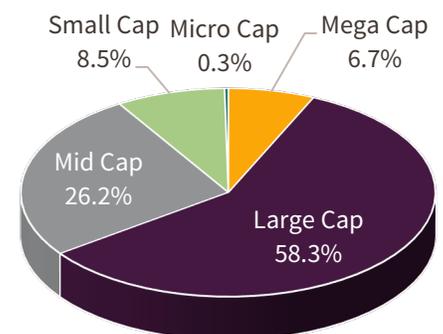
# Portfolio Allocations

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

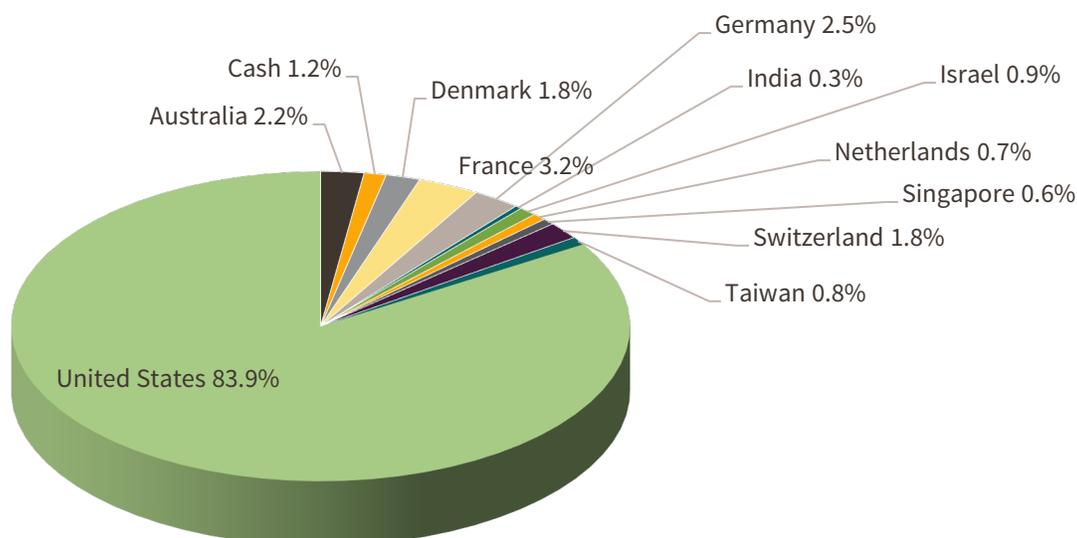
## Economic Sectors <sup>††</sup>



## Market Capitalizations



## Companies' Main Headquarters



<sup>††</sup> 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<sup>i,ii</sup> 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

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<sup>i</sup> 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>

<sup>ii</sup> 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](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."

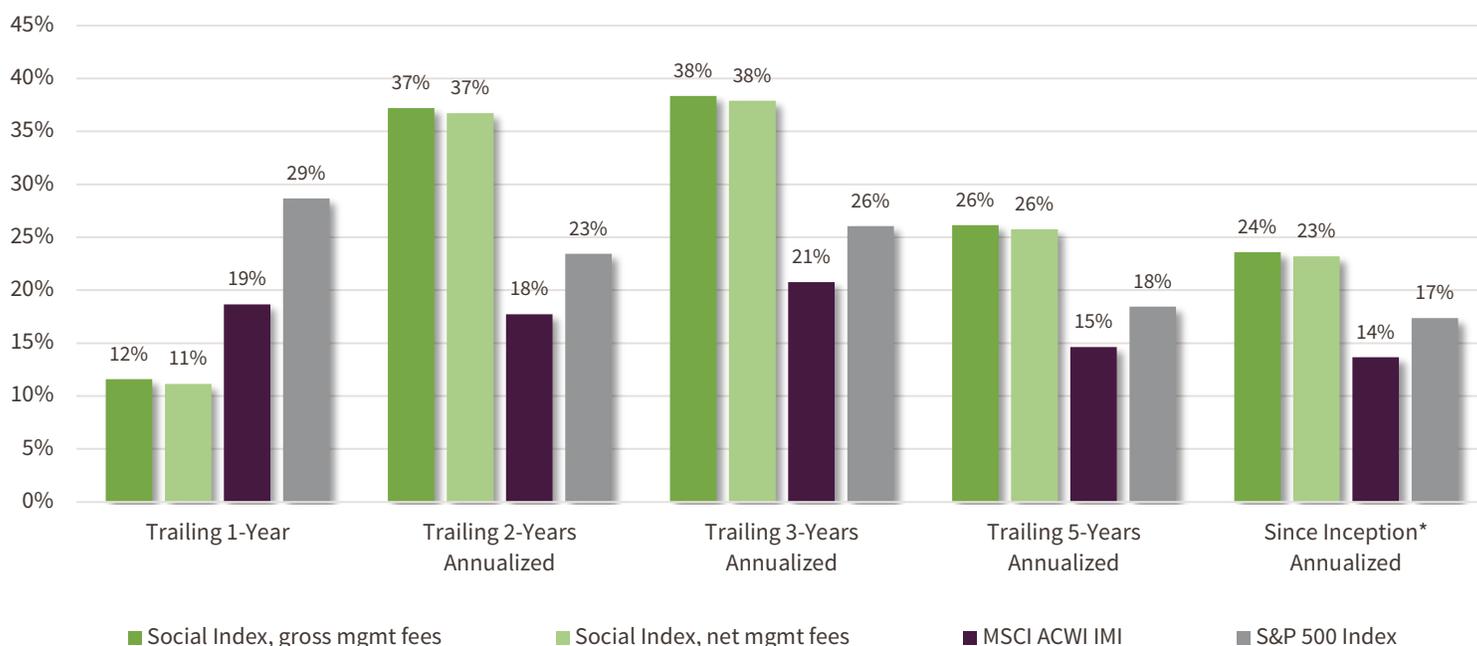
But while narratives matter in the short and sometimes medium terms, it is business results and overall fundamentals that drive returns in the long run. Business results-based returns, which come from reinvestment of retained earnings into expansionary pursuits such as growing production capacity, improving 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.

*Social Index portfolio-specific reflections follow on the next page*

# Performance & Commentary



In 2021, Green Alpha's Next Economy Social Index strategy returned 11.15% 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 chip designers and semiconductor manufacturing companies with advanced technologies, as they benefited the remote work, learn-from-home, and Internet of Things growth, along with increased pricing power from the global semiconductor shortage. These firms' focus on wireless connectivity, artificial intelligence, and security 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. In tandem with the increasingly 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 companies, also detracted from returns due to the markets' rotation to value stocks during an uncertain time. These losses were partially offset by gains in vaccine makers and select gene therapy companies.

*\*Portfolio Inception: December 31, 2015. 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 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 July 31, 2021, the Next Economy Social 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 Social 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 Social 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. Next Economy Social 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 July 31, 2021, Next Economy Social Index performance results reflect performance of a model portfolio. The Next Economy Social Index model performance does not reflect any transaction costs. The Next Economy Social Index model performance results do reflect the reinvestment of dividends and interest. Model performance has inherent limitations. The returns shown during that time period are model results only, and do not represent the results of actual trading of client assets. The model performance shown does not reflect the impact that material economic and market factors had, or might have had, on decision making if the account held actual client capital. Actual client accounts in this strategy are managed by Green Alpha based on the model portfolio, but the actual composition and performance of these accounts may differ from those of the model portfolio due to differences in the timing and prices of trades, and the identity and weightings of securities holdings.
- The Next Economy Social Index strategy contains stocks that are managed with a view towards capital appreciation. 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.
- Regardless of time frame, all characteristics data are sourced from Bloomberg Finance L.P. based on a model Next Economy Social Index portfolio that may or may not be exactly what is delivered and available 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](mailto: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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