

# Next Economy Select

Portfolio Review • December 31, 2018

## Green Alpha<sup>®</sup>

### Review Contents

The Portfolio .....	1 - 4
Characteristics .....	2
Top Ten Positions .....	3
Market Cap & Sector Allocation .....	4
Performance .....	5 - 9
Performance History & Sector Attribution .....	5
Top Five Contributors & Detractors .....	6
Manager Commentary .....	7 - 9
Disclosures .....	10

### Why Invest in Next Economy Select?

- Actively managed, long-only equity strategy seeking long-term capital growth
- 45-65 global, market-leading companies driving the transition to the Next Economy™
- Invests in innovative solutions to core economic and environmental risks
- Fossil fuel free since inception

**Inception Date:** March 31, 2013

**Style:** All-Cap Global Growth Equity

**Available Vehicles:** Mutual Fund,  
Separately Managed Account

### Next Economy Investment Philosophy

Green Alpha's investment philosophy is straight forward: don't invest in companies that cause global systemic risks; instead, invest in the solutions.

We believe companies that create or enable innovative solutions to climate change, resource scarcity and widening inequality are the greatest growth drivers of the twenty-first century. That's the Next Economy.



### Portfolio Construction: Next Economy Select

The Next Economy Select portfolio is designed for investors seeking long-term capital growth. The strategy is available as a mutual fund and as a managed account to help provide democratized, low-minimum account size access to high quality investing. Because of this, the portfolio's primary objective is capital appreciation via high-conviction, market-leading Next Economy companies, with moderately less volatility than some of our other strategies. Since the primary vehicle available within this strategy is a mutual fund, this product follows standard mutual fund industry diversification guidelines, such as: limited position sizes over 5% of the portfolio and no industry concentration in excess of 25%. Under normal market conditions, Next Economy Select is generally composed of at least 80% global equities and at most 20% cash and cash equivalents. Like all Green Alpha portfolios, Next Economy Select is a fossil fuel free, all-cap, cross-sector, global equity strategy.

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

# Portfolio Overview: Next Economy Select

Portfolio characteristics and how they compare to the S&P 500 (SPY) and other Green Alpha portfolios

## Next Economy Select Characteristics

- **Highest conviction stocks, two investment vehicles** – democratizing access to leading Next Economy companies via a mutual fund and SMAs
- **Fundamentals-driven** – because the quality of the companies you invest in and the price you pay for them matter
  - ✓ **High growth** – indicated by Sales Growth, drop from current P/E to Forward P/E as revenue and earnings grow
  - ✓ **Compelling valuation** – demonstrated by Price/Sales, Price/Book metrics
  - ✓ **Strong balance sheet, solid management execution** – expressed by LT Debt/Equity, Current Ratio
- **Fossil fuel free since inception** – we have never invested in companies that prospect, extract, refine, or transport fossil fuels, nor fossil-fired utilities
- **Diversified** – we look for solutions wherever we can find them – across the globe, in firms of all sizes, and in every industry
- **Public equities, long-only** – largest asset class, largest opportunity for impact

Characteristics	Green Alpha Next Economy Select	Benchmark: S&P 500 (SPY)	Green Alpha Next Economy Index	Green Alpha Next Economy Social Index	Green Alpha Growth & Income	Sierra Club Green Alpha
# of Securities	52	500	115	95	32	42
Sales Growth, TTM	17.75%	12.42%	18.97%	20.81%	13.79%	16.59%
P/E, Current	20.12	25.24	35.65	36.16	28.23	24.64
P/E, 1-Year Forward <sup>†</sup>	17.26	14.45	18.53	20.07	16.67	17.15
Price/Sales	0.95	1.89	1.37	1.52	1.89	1.28
Price/Book	1.61	2.99	2.29	2.74	1.94	1.93
LT Debt/Equity	0.67	0.85	0.69	0.82	1.23	0.66
Current Ratio	2.44	1.82	2.89	2.91	1.83	2.55
Dividend Yield, TTM	2.27%	2.15%	1.87%	1.88%	5.83%	1.95%
US Domicile	69.84%	100%	74.19%	80.85%	80.95%	73.66%
Non-US Domicile	28.94%	-	23.96%	16.71%	17.54%	23.71%
Cash	1.22%	-	1.85%	2.43%	2.48%	2.62%
Market Capitalization Weighted Avg (US\$B)	41.36	201.30	54.74	50.83	25.35	52.52
Turnover, TTM	15%	-	25%	65%	32%	29%
Beta, Trailing Two Years	1.00	1.00	1.05	1.05	0.85	0.95

TTM = Trailing Twelve Months

<sup>†</sup> Bloomberg consensus estimates

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

# Top Ten Positions

And how the top five positions are driving progress toward the Next Economy

## Vestas Wind Systems (Energy, Renewable Energy)

- Global leader in wind energy technology & services (making wind a mainstream energy source); onshore installations & onshore grid-connected installations; & in scale of projects.
- Wind energy offers a cost competitive replacement to fossil fuels & is therefore a key component of the Next Economy.
- One woman in Senior Management (20%) & three on the Board of Directors (23%).

## Pattern Energy Group (Utilities, Power Generation)

- Portfolio of 20 upstream wind power facilities with a footprint that includes the US, Canada, Chile, Mexico.
- Also includes projects around solar, transmission & storage.
- High quality, investment grade, & long-term power purchase agreements translate to steady revenue stream.
- Above average gender diversity for a utility company, with two women in Senior Leadership (20%) & two on the Board of Directors (29%), including the Chair of the Nominating, Governance & Compensation Committee.

## First Solar (Energy, Renewable Energy)

- Has developed, financed, engineered, constructed & currently operates many of the world's largest grid-connected solar PV power plants.
- Business spans utility-scale solar, corporate renewables, community solar, "turnkey" systems for developers, & operations & maintenance services.
- Makes unique CdTe technology solar cells, which are inexpensive, more efficient than C-Si panels in hot environments, and also outperform in cloudy and shady conditions. CdTe tech is also exempt from current U.S. tariffs.

## Canadian Solar Energy, Renewable Energy)

- Leading manufacturer of solar PV modules, in both volume & cost.
- The transition to a low carbon economy requires economically competitive, utility-scale renewable energy.
- Geographically diversified pipeline of utility-scale power projects. Not overly dependent of U.S. derived revenues.
- Subsidiaries in 20 countries on 6 continents.

## Applied Materials (Technology, Semiconductors & Manufacturing Equipment)

- Next Economy applications include manufacturing of semiconductors, displays, solar cells, & many emerging technologies.
- Provides the fundamental building blocks for efficiency-driving tech applications, like AI, robotics, automation, solar energy, & the IoT. An interconnected, data-driven, & electrified economy requires semiconductors.
- Also offer automation software, thereby improving efficiency in production of these essential technologies.
- Two women (20%) participants on the Board, including Chair of the Corporate Governance & Nominating Committee, & one women in Senior Management.

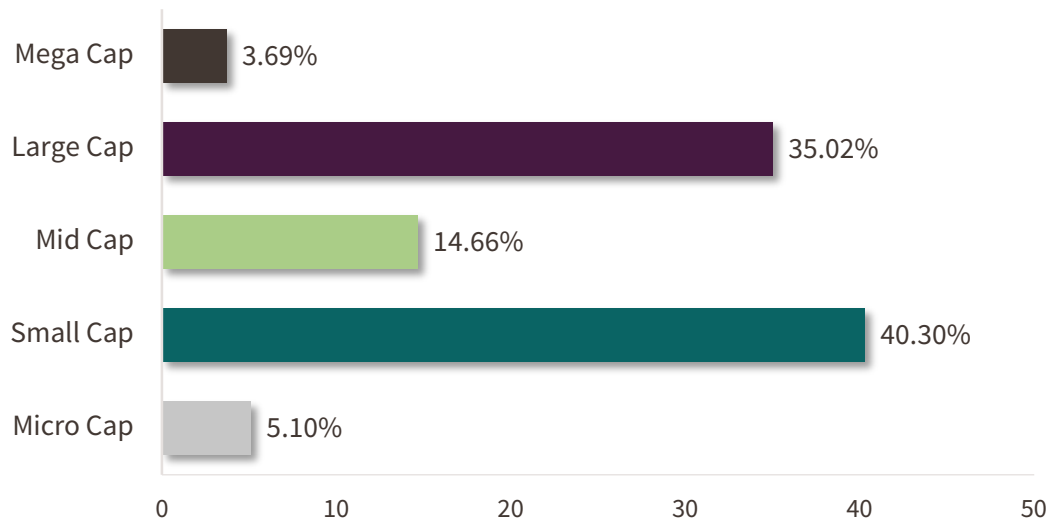
Company Name	Ticker	Weight
Vestas Wind Systems	VWDRY	7.38%
Pattern Energy Group	PEGI	6.41%
First Solar	FSLR	4.82%
Canadian Solar	CSIQ	4.34%
Applied Materials	AMAT	4.05%
SunRun	RUN	3.88%
Alphabet	GOOG	3.69%
Int'l Business Machines	IBM	3.33%
Terraform Power	TERP	3.14%
Tesla	TSLA	3.14%
<b>% of Portfolio</b>		<b>44.19%</b>

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

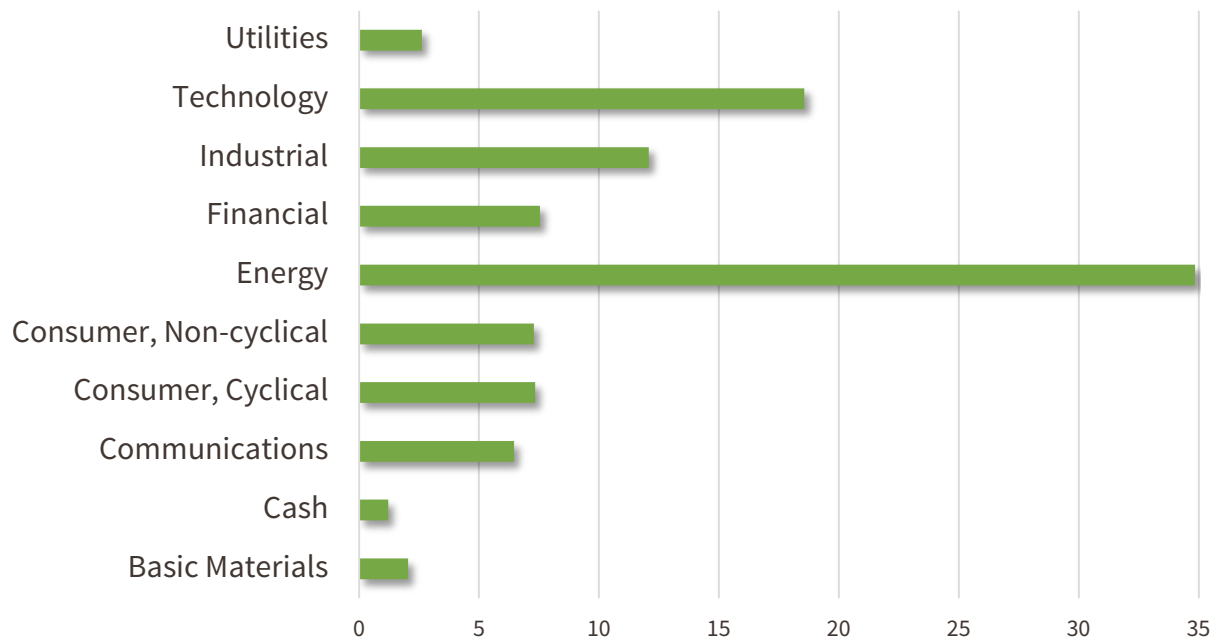
# Allocation by Market Cap & Sector

Our search for Next Economy companies is unconstrained. We seek solutions to systemic risks wherever they exist – across sectors, market caps, and geographies. The following divisions are the result of our Next Economy process, rather than the starting point.

## Equity Allocation by Market Cap



## BICS<sup>††</sup> Sector Allocation (% of Portfolio)

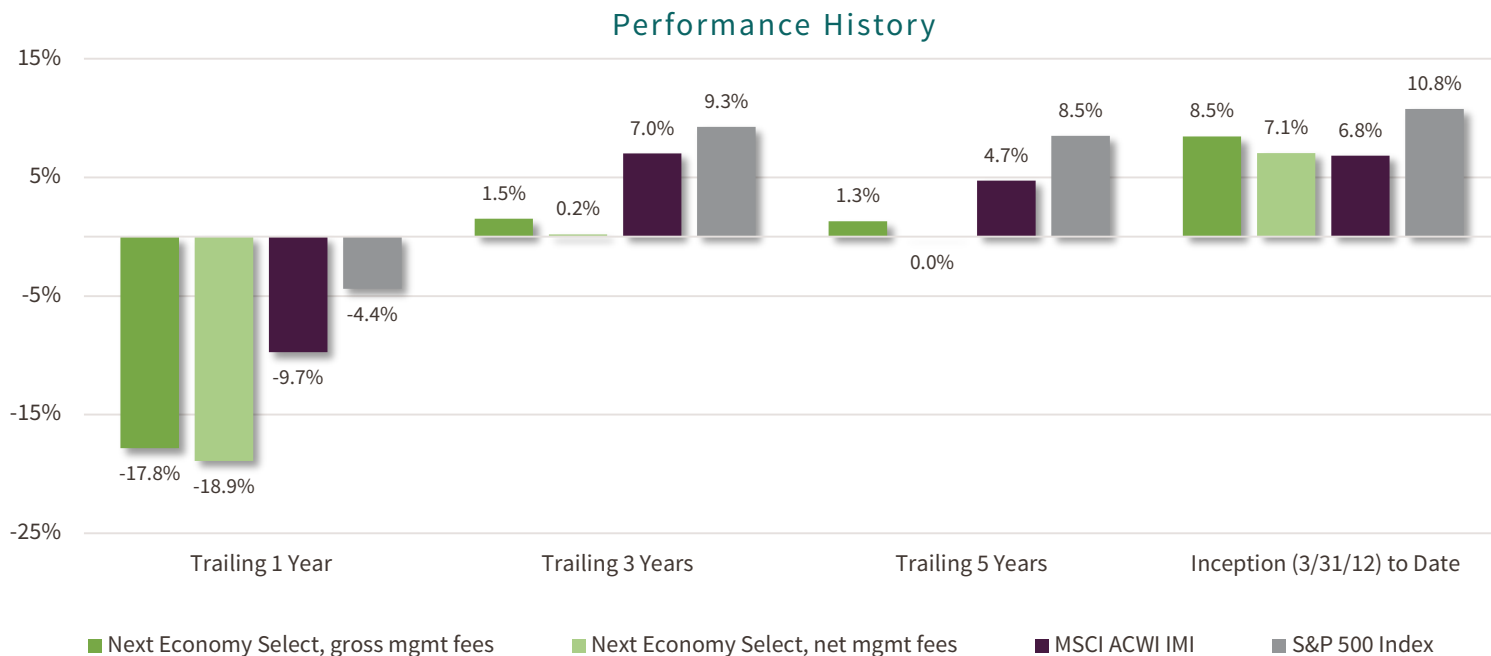


<sup>††</sup> Bloomberg Industry Classification Standard

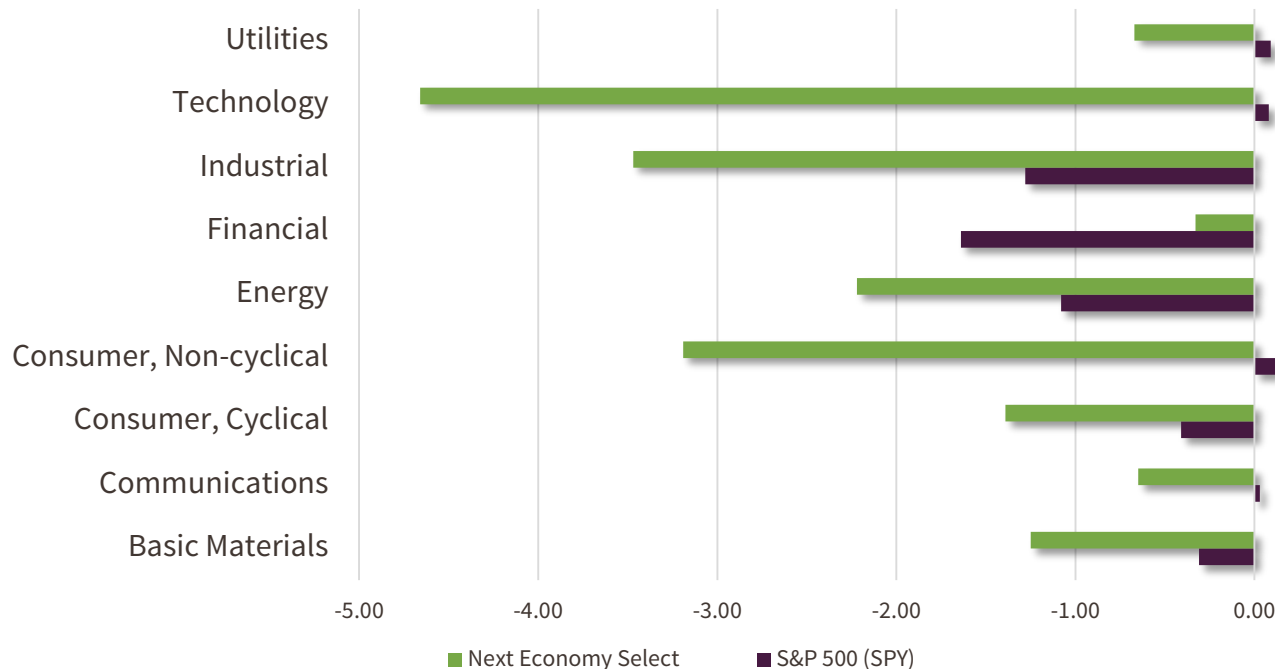
Please see the final page of this document for important disclosures about portfolio, benchmark and characteristic information.

# Performance History & Sector Attribution

For commentary, see pages 7 - 9.



### Year to Date 2018 Sector Attribution by BICS<sup>††</sup>



<sup>††</sup> Bloomberg Industry Classification Standard

All returns presented above that are greater than 1 year in length have been annualized. Performance data represents past performance and does not guarantee future results. Current performance may be lower or higher than the data quoted. Next Economy Select performance results reflect actual performance for a composite, net of actual management fees and transaction costs. Some assets managed to the Next Economy Select strategy in 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 all full-month periods under management with Green Alpha Advisors, LLC. Next Economy Select performance results reflect the reinvestment of dividends and interest for some client accounts in the composite, but not all, as that is dictated by each client. 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. Please see more important disclosures on the final page of this document.

# Attribution: Top Five Contributors & Detractors

Next Economy innovation doesn't unfold overnight—or even a quarter. Think of this as one way of looking at the previous quarter's performance, not necessarily the long-term picture.

## Five Largest Contributing Stocks – 4<sup>th</sup> Quarter

Company Name	Ticker	Average Weight	Share Price Return	Contribution to Portfolio Return
<b>SunRun</b>	RUN	2.90%	96.22%	1.28%
<b>Trex Company</b>	TREX	1.93%	31.81%	0.70%
<b>TPI Composites</b>	TPIC	1.65%	29.85%	0.45%
<b>Fortinet</b>	FTNT	0.76%	96.51%	0.34%
<b>Invitae Corporation</b>	NVTA	0.52%	47.47%	0.26%

## Five Largest Detracting Stocks – 4<sup>th</sup> Quarter

Company Name	Ticker	Average Weight	Share Price Return	Contribution to Portfolio Return
<b>JinkoSolar Holding Co.</b>	JKS	2.46%	-60.36%	-2.08%
<b>Applied Materials</b>	AMAT	4.08%	-36.02%	-1.63%
<b>Hain Celestial Group</b>	HAIN	1.77%	-61.46%	-1.36%
<b>Skyworks Solutions</b>	SWKS	2.95%	-33.00%	-0.89%
<b>Sierra Wireless</b>	SWIR	2.10%	-37.53%	-0.81%

Past performance is not a guarantee of future results. To obtain information about the calculation methodology used to select the representative account's largest contributors and detractors from performance or to obtain a list showing every holding's contribution to the account's performance during the measurement period, contact us at [info@greenalphaadvisors.com](mailto:info@greenalphaadvisors.com). Given differences in account sizes, custodial fee arrangements and other client-specific factors, not all accounts invested in the Next Economy Select experienced the exact portfolio contributions shown above. The holdings identified throughout this document do not represent all of the securities purchased, sold, held or otherwise recommended for advisory clients. Nothing in this document should be considered recommendation to purchase or sell any particular security.

# Manager Commentary

2018 in Review



End-of-year 2018 was [one of the worst](#) that U.S. stock markets have experienced, and traders have no trouble finding reasons for pessimism. Like, maybe the [end of democracy](#), or at a minimum a [slowing of its economic benefits](#), is nigh. Beginning in December, the U.S. government was [closed 'indefinitely,'](#) or at least the shutdown can be kicked [down the road](#) to the next Congress. An [economy-shrinking trade war](#) is in effect. The [IPCC told us](#) we have 12 years to get our act together on climate disruption, and a U.S. federal climate change report described the [dangerous consequences](#) for American farmers if changes aren't made soon.

It's enough that you might ask, 'what's the point of being worried?'

Stewart Brand [wrote](#), "science is the only news... Human nature doesn't change much; science does, and the change accrues, altering the world irreversibly." In that light, this period is likely to be remembered by history less for Trump and more as the time when humanity [took control of its own evolution](#), artificial intelligence (AI) began to [usher in a "New World Order,"](#) and as the time when we either lost or regained control of our [system-level risks](#). It is in these last three pieces of our "only news" (as Brand would have it) that we see our present paradox: [risks](#) and [innovation](#) are peaking together, today, and it's not clear to which side of the knife's edge humanity will fall: toward an unimaginably better future of abundance or to an unimaginably worse one of ruin and dystopia.

This double precipice is why we have to invest to manage the risks that matter, why Green Alpha is here, and may be why you have placed your trust in Green Alpha to invest in the innovations driving progress toward the Next Economy™. When market sentiment is at its most negative is when investors can set themselves up for potential future gains.

In 2018, and particularly in Q4, markets began exhibiting the volatility [we predicted](#) would occur within the context of unpredictable political leadership. At the same time, business results, if not share prices, have been improving steadily in many Next Economy areas. Our holding [First Solar](#) was a prime example of this in 2018.

Green Alpha strategies had negative performance returns for the year, but they performed reasonably well relative to major benchmarks, albeit with more inter-strategy dispersion than we have seen in previous years. So, what did we observe about the ongoing transition to the Next Economy in 2018? (For those who may need a refresher on our thesis of Next Economics™, a quick audio overview can be found [here](#) and a more thorough white paper treatment is [here](#).)

**RE 100: growing corporate commitments to 100% renewables-based operations.** In 2018, we saw de-politicization of renewable energy as an idea. Corporations and governments around the world have been making formal commitments to deriving [100% of their electricity production from renewable sources](#), usually meaning wind and solar supported by battery storage. A Yale survey reported that 81% of Americans, including 64% of Republicans, now [support renewable energy](#). We've always believed that renewables represent great economic development and wealth creation opportunities, all while countering climate disruption and reducing pollution. Therefore, wind and solar should not be pawns in culture wars, and innovation shouldn't and ultimately can't be contained by ideology.

As of this writing, [RE 100](#) (an informal group of global companies committed to running their operations on 100% renewable energies) had 158 of the world's largest companies as [signatories](#). Many companies are eager to adopt renewable energies for the same reasons we invest in them; they de-risk the global economy relative to fossil fuels, and they are [cheap](#), meaning they increase the productivity of every dollar invested in a company. It's not surprising that 2018 was a [record year](#) for corporate purchasing of renewable energies. As Deloitte [said of energy](#) in 2018, "Solar and wind move from mainstream to preferred."

*Continued on page 8*

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

# Manager Commentary (cont.)

2018 in Review

**EVs are booming.** According to the [U.S. Department of Energy](#), “1 million plug-in vehicles have been sold in the United States” as of October 2018, up from zero in 2010. Electric vehicles (EVs) reached a per-month sales crescendo (until the next one) of 45,000 vehicles per month. This is occurring even though overall vehicle sales are down, meaning EVs are increasing their market share. This has significant implications not only for climate change and pollution mitigation but also for industries all along the value chain of EVs—advanced materials, battery storage, microgrids, AI (including autonomy), charging infrastructure, and electricity demand versus liquid BTU demand. All of these areas are likely to see more rapid growth. Audi, Mercedes-Benz, BMW and BMW Mini, Nissan, Porsche, Kia, and Volvo all have announced [new all-electric vehicles for 2019](#), and many more will follow in 2020, including VW. We predict EVs will continue to be responsible for any new growth in the personal vehicle space.

**California is leading.** The world’s fifth largest economy is showing us how to accelerate the transition to sustainability. The 2018 highlight was SB 100, a law that set a target of 100% clean energy by 2045, making California the [largest political jurisdiction](#) to make such a commitment. The law confirmed new standards that require panels to be installed on any new home or low rise residential building of three stories or less—about 80,000 new homes a year. That could quadruple the amount of solar in California.

The state’s 100% [zero-emission bus rule](#) states that all state transit authorities must convert to 100% electric transit vehicles by 2040. By 2029, all government transit bus services have to be zero-emissions vehicles, and California is providing incentives for cities to get there.

In electricity, transit, and electrification of homes (including heating), the importance of California’s efforts shouldn’t be understated. Over and over, we’ve seen that centers of innovation lead to global changes, even in the face of [significant resistance](#). The economic scale of the state alone means businesses around the world hoping to sell into or work in the state must adapt to their policies.

However, the political economy of technology is now visibly ascendant. The days of policy preceding change are ending, and policy is increasingly reacting to tech- and innovation-based change. Thus, for us, investing on the basis of proactive policy will be of limited utility. California’s leadership is outstanding, but it works because the underlying green tech is productive and economically efficient. All that said, intelligent policy will pay for research that is likely to improve green tech over the long-term, but does not have immediate return on investment. Here too, California is [“going solo,”](#) and in the lead.

**AI is rising.** Green Alpha invests along the value chain that is enabling AI to emerge as a source of innovation (e.g., [Google](#)’s quantum computing) and, perhaps more importantly, a way to address problems insoluble by human minds, perhaps ultimately enabling humanity to have good standards of living around the world without further crossing planetary boundaries. Taking the long view, Steven Strogatz [put it down](#) clearly: “we will recall with pride the golden era of human insight, this glorious interlude, a few thousand years long, between our uncomprehending past and our incomprehensible future.”

## **Common threads among Green Alpha portfolios: thesis and management consistency**

To have a shot at earning alpha and outperforming markets and peers, an investment manager has to look at the world from a different angle. Most managers conform to benchmark tracking—settling for beta or market-comparable returns—because the consequences of a period of underperformance could be significant. At Green Alpha, your portfolio managers are founders and plurality owners of the firm. We invest every day, we strive to remain fully invested every day, and we strictly adhere to our thesis, even during periods of volatility, with conviction that long-term results will remain competitive.

*Continued on page 9*

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



# Manager Commentary (cont.)

## 2018 in Review

This frees us to strive for outperformance without the handcuffs of benchmark correlation. Consequently, we define our own portfolio construction methodologies and address the world as it is, rather than faithfully employing Modern Portfolio Theory. The problem with the ubiquity of the present application of Modern Portfolio Theory is that if any given manager sees the world the same way as every other manager, they will likely miss market inefficiencies and have low probabilities of achieving standout performance as a result. Free of Modern Portfolio Theory, we can fully commit to our Next Economy thesis, and the world we see unfolding, without feeling the need to mimic benchmarks that represent the carbon-intensive economy of the past. Seeing things differently has the risk of short-term periods of underperformance, yet it is a necessary precondition of long-term outperformance.

Next Economy investing, like private equity investing, requires patience, and it does mean that Green Alpha will experience periods of both underperformance and outperformance over shorter time periods. In 2018, we saw both, and with more dispersion among [our strategies](#) than we have observed in previous years.

### Next Economy Select - Portfolio Commentary

Next Economy Select fared the worst of our strategies in 2018, and returned -17.81%, gross of management fees, during the year.

- Primary detractors during 2018 were the Technology and Industrial Sectors, detracting 4.66% and 3.47%, respectively, during the period.
  - In Technology, Semiconductors as an industry performed the worst, detracting 4.20% from overall 2018 performance. Makers of integrated circuits, chips, remote sensors, system-on chip designers and makers, and upstream capital equipment required to produce these items all suffered. The often cited reasons was a “secular slowdown” in chip demand, caused by perceptions of a globally slowing economy, along with mature device markets. These concerns may prove valid in the short-term, but in the long run, the global economy will need far more advanced chipsets, not fewer. Software as an industry was up for the sector during 2018, and contributed 0.14%.
  - In Industrials, the Electronics and Electrical Components Industries fared the worst. In both cases, the makers of advanced displays, both OLED and LCD, fared the worst, as concerns emerged about global device sales. Makers of smart meters also fared poorly, as some utilities dragged their feet on smart-grid integration, and sales were slower than expected. Together, the Electronics and Electrical Components Industries returned -2.79%.
- Financial was the portfolio’s leading sector, contributing -0.33%, followed by the Communications Sector, which contributed -0.65%.
  - In Financial, one firm from the Investment Companies Industry, a venture-debt company providing capital to innovative private companies in technology and medicine—was up, adding 0.12% to total returns. The firm has a high dividend yield, and as such, may have attracted new capital during the year’s volatility. Reinsurance lived up to its reputation for long-term stability and low volatility and added 0.03% to overall returns. The long term-emphasis on solvency and conservative nature of reinsurance’s capital requirements, combined with attractive dividend yields, no doubt gave investors the comfort they desired during a volatile cycle. The Diversified Financial Services Industry was down, as a sustainable finance company detracted 0.38%.
  - In the Communications Sector, the Internet Industry fared the best, with digital security making a positive contribution of 0.12%, while search detracted 0.06%. Telecommunications returned -0.71%, as a provider of wireless communications equipment—the industry’s only representative in the strategy—was affected by the downturn in Semiconductors.

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

# Important Information & Disclosure

- Performance data quoted 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.
- Composite-level performance data shown on page 3 includes performance data for the mutual fund, which is sourced from Morningstar, Inc., and performance data for separately managed accounts, which is sourced from each client's custodian.
- All other performance and characteristics data in this document are sourced from Bloomberg Finance L.P. 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 of 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 S&P 500 Index is an unmanaged index of 500 common stocks chosen for market size, liquidity and industry group representation. It is a market-value weighted index. The S&P 500 Index figures do not reflect any fees expenses or taxes. Investors cannot invest directly in this index.
- The SPDR S&P 500 ETF (SPY) seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the S&P 500 Index. Investors can invest directly in SPY.
- MSCI ACWI IMI: The MSCI ACWI Investable Market Index (IMI) captures large, mid and small cap representation across 23 developed markets and 24 emerging markets countries. With over 8,700 constituents, the index is comprehensive, covering approximately 99% of the global equity investment opportunity set. Investors cannot invest directly in this index.
- At the time this commentary was written and published, Green Alpha portfolios did not have any positions, long or short, in the following public securities mentioned in this document: Audi (Audi AG), Mercedes-Benz (Daimler AG), BMW (Bayerische Motoren Werke Aktiengesellschaft), Nissan (Nissan Motor Co., Ltd.), Porsche (Porsche Automobil Holding SE), Kia (Kia Motors Corporation), Volvo (AB Volvo), VW (Volkswagen AG), and FedEx (FedEx Corporation).
- 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 of the information that may be required to evaluate Green Alpha Advisors and its investment strategies.
- 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," and "Investing in the Next Economy."
- For additional legal information and Form ADV Part 2, please see <http://greenalphaadvisors.com/about-us/legal-disclaimers/>.