

Next Economy Index

Portfolio Review • June 30, 2018



Green Alpha[®]

Review Contents

The Portfolio	1 - 4
Characteristics	2
Top Ten Positions	3
Market Cap & Sector Allocation	4
Performance	5 - 8
Performance History & Sector Attribution	5
Top Five Contributors & Detractors	6
Manager Commentary	7 - 9
Disclosures	10

Why Invest in the Next Economy Index?

- Passive, diversified exposure to many sectors and industries
- Global 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: December 30, 2008

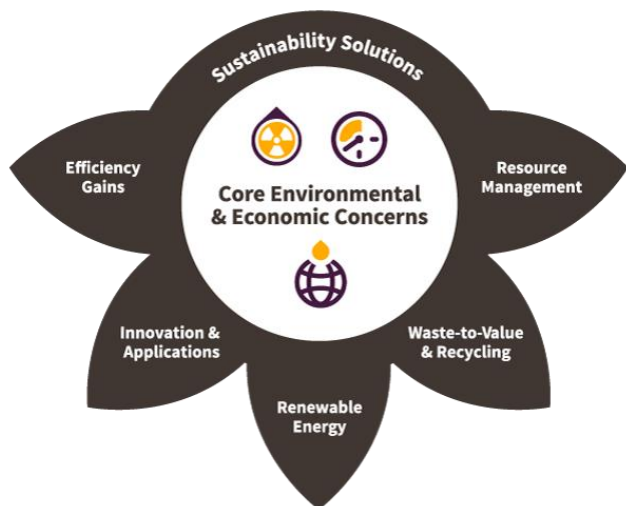
Style: All-Cap Global Growth Equity

Available Vehicle: 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 Index

The Green Alpha Next Economy Index is a passively managed index designed to reflect and benchmark the Next Economy™ – the unfolding, solutions-oriented, innovation-driven, highly efficient economy. It exists to: (1) define all aspects of the Next Economy, (2) demonstrate the diversity, growth, breadth and depth of the Next Economy, and (3) serve as a performance benchmark for sustainable active, public equity investment strategies. The Index seeks long-term capital appreciation and serves as a basis for all of Green Alpha Advisors' actively managed portfolios. The portfolio uses a modified market-cap weighting and is rebalanced annually. While the managers may choose to add or remove companies from the Index on an inter-rebalance basis, it is anticipated that these changes will not have a large effect on portfolio turnover. Like all Green Alpha portfolios, the Next Economy Index 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 Index

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

Next Economy 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 investment process to enter the Index
- **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 Index	Benchmark: S&P 500	Green Alpha Next Economy Social Index	Green Alpha Next Economy Select	Green Alpha Growth & Income	Sierra Club Green Alpha
# of Securities	94	500	73	54	33	38
Sales Growth, TTM	17.48%	11.70%	18.34%	16.56%	9.20%	18.14%
P/E, Current	34.06	35.65	34.41	22.63	32.26	27.38
P/E, 1-Year Forward [†]	20.33	16.21	20.36	16.77	17.98	18.59
Price/Sales	1.66	2.16	1.67	0.90	2.04	1.28
Price/Book	2.84	3.28	3.16	1.74	1.99	2.10
LT Debt/Equity	0.54	0.85	0.61	0.57	1.05	0.55
Current Ratio	2.96	2.01	2.91	2.87	2.75	3.13
Dividend Yield, TTM	1.61%	1.93%	1.49%	2.21%	6.02%	1.84%
Dividend Yield, Current	-	-	-	-	4.88%	-
US Domicile	76.77%	100%	82.81%	68.28%	76.66%	69.62%
Non-US Domicile	21.23%	-	14.53%	27.33%	21.14%	23.51%
Cash	2.00%	-	2.66%	4.39%	2.21%	6.87%
Market Capitalization Weighted Avg (US\$B)	65.90	217.20	70.14	43.11	19.73	59.46
Turnover, TTM	18%	-	37%	15%	34%	18%
Beta, TTM	1.04	1.00	1.03	0.95	0.88	0.95

TTM = Trailing Twelve Months

[†] Bloomberg consensus estimates

^{††} Bloomberg Investment Classification System

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Top Ten Positions

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

Alphabet, Inc. (Communications, Media)

- Provider of unlimited access to global information. Anyone with access to Google has better access to information than the richest person on earth had 20 years ago.
- Innovation-driven venture capital fund with dozens of fascinating “moonshots” (e.g., “Project Loon – the balloon-powered internet for everyone”). All extremely well capitalized by the best ad-serving machine in history.
- Global operations use 100% renewable energies.
- Sole woman in Senior Management is an award-winning CFO. Board of Directors has three women (23%), including the Audit Committee Chair.

NVIDIA Corp. (Technology, Semiconductors)

- GeForce chip architecture sets the standard for high-speed processing applications such as: graphics processing, AI & deep learning, autonomous machines (including self-driving vehicles), crypto currency mining, data centers, cloud computing, design & production visualization.
- Machines empowering algorithms & AI are essential to increasing economic efficiency & sustainability of global economy.
- Strong 33% women in Senior Management Team, including two critically influential positions: EVP/CFO & EVP/Operations. Board of Directors includes three women (25%); replaced one male Director with a woman since 2016.

Square, Inc. (Financials, Financial Transactions)

- Mobile transaction service provider, primarily enabling merchants to accept payments anywhere.
- Provides efficient, easy to use, & affordable software hardware for merchants, making commerce more accessible.
- Women make up 27% of Senior Management & 22% of the Board, including two Committee Chairs.

Dassault Systemes, SA ADR (Technology, Software)

- Provides the software required to create, model, & test designs of any kind.
- Design applications across entire economy, right down to chip architecture itself.
- Increases global economic productivity by streamlining design processes from concept stage to production stage; faster, more effective design is one of the major reasons why pace of innovation is accelerating.
- Led by two women in Senior Management, including Chief Strategy Officer. Impressive five women (45%) on the Board.

Alibaba (Consumer Discretionary, eCommerce)

- Largest, hyper-efficient, data-driven e-commerce platform connecting buyers to 10 million sellers/producers. Intermediary between sellers & buyers, unlike other large e-commerce companies which buy products from merchant & then resell.
- Low barrier to entry for sellers, making e-commerce more accessible for smaller businesses.
- Immense investors in R&D into technology & efficiency/logistics of commerce.
- Impressive five women (31%) on the Senior Management Team, including CFO.

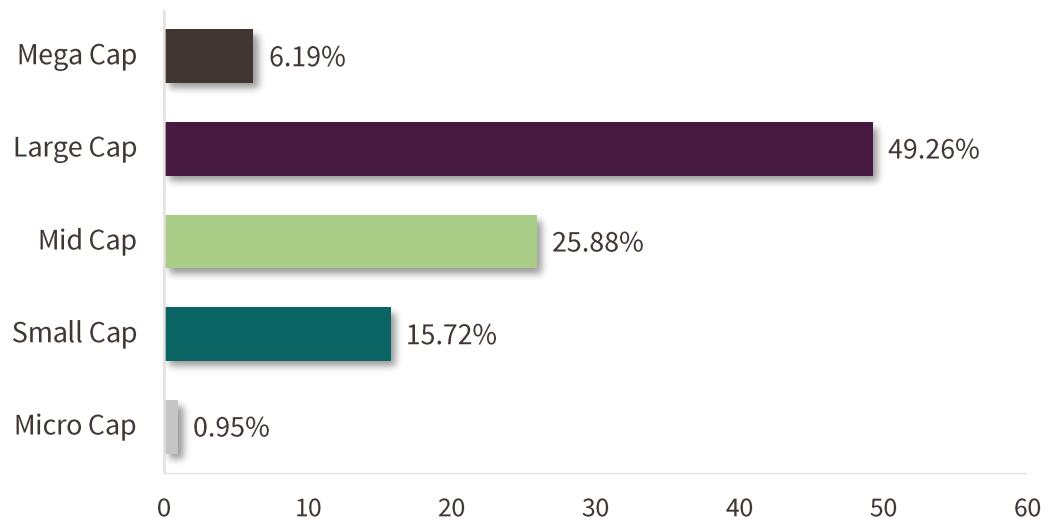
Company Name	Ticker	Weight
Alphabet, Inc.	GOOG	2.66%
NVIDIA Corp.	NVDA	2.26%
Square, Inc.	SQ	2.05%
Dassault Systemes SA	DASTY	2.01%
Alibaba Group	BABA	1.77%
Apple, Inc.	AAPL	1.76%
Int'l Business Machines	IBM	1.66%
Ansys, Inc.	ANSS	1.66%
Fortinet, Inc.	FTNT	1.64%
Tesla, Inc.	TSLA	1.63%
% of Portfolio		19.09%

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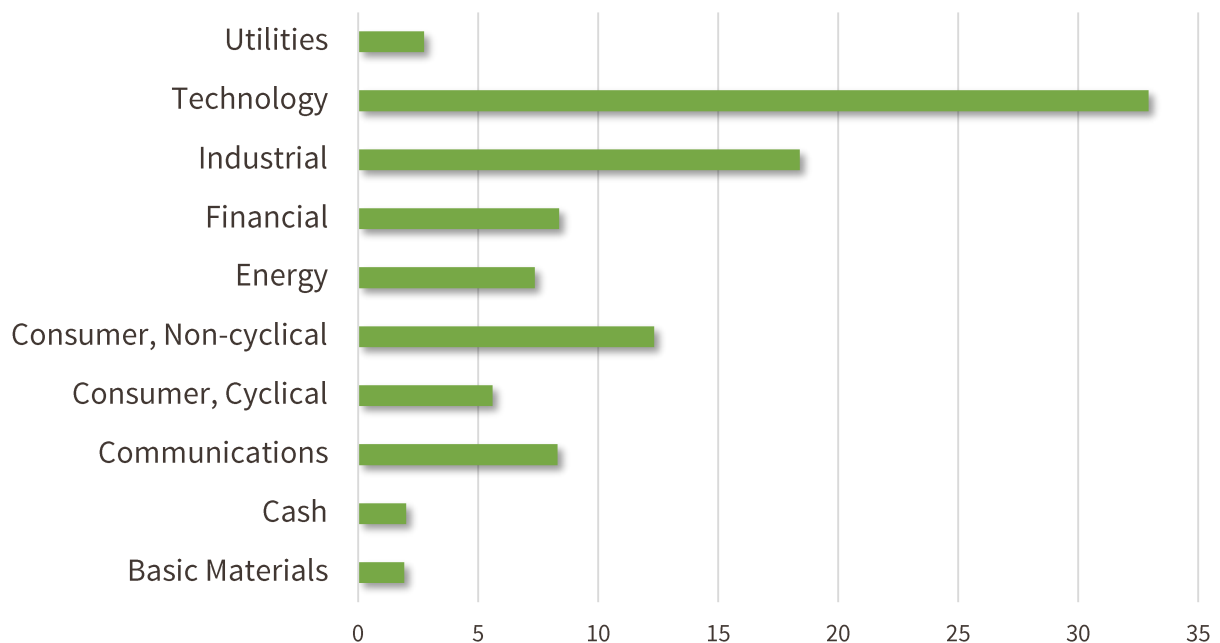
Allocation by Market Cap & Sector

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^{††} Sector Allocation (% of Portfolio)



[†] Bloomberg consensus estimates

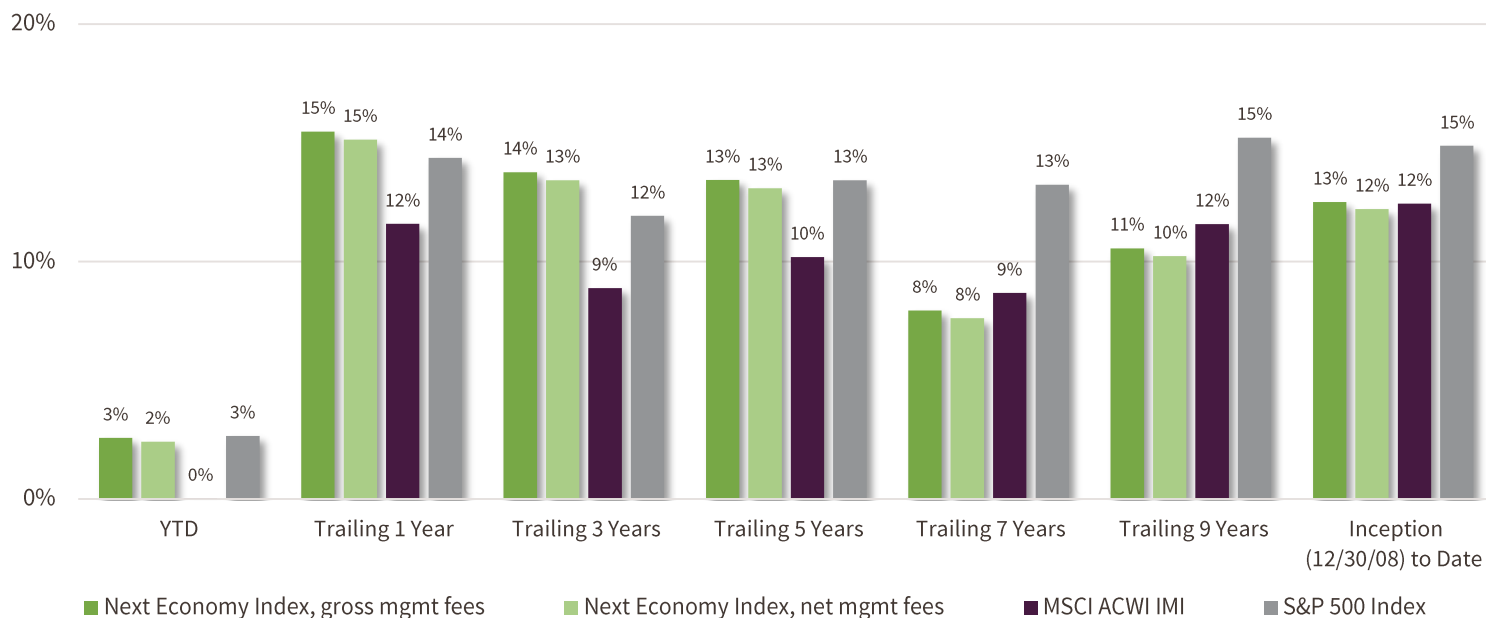
^{††} Bloomberg Investment Classification System

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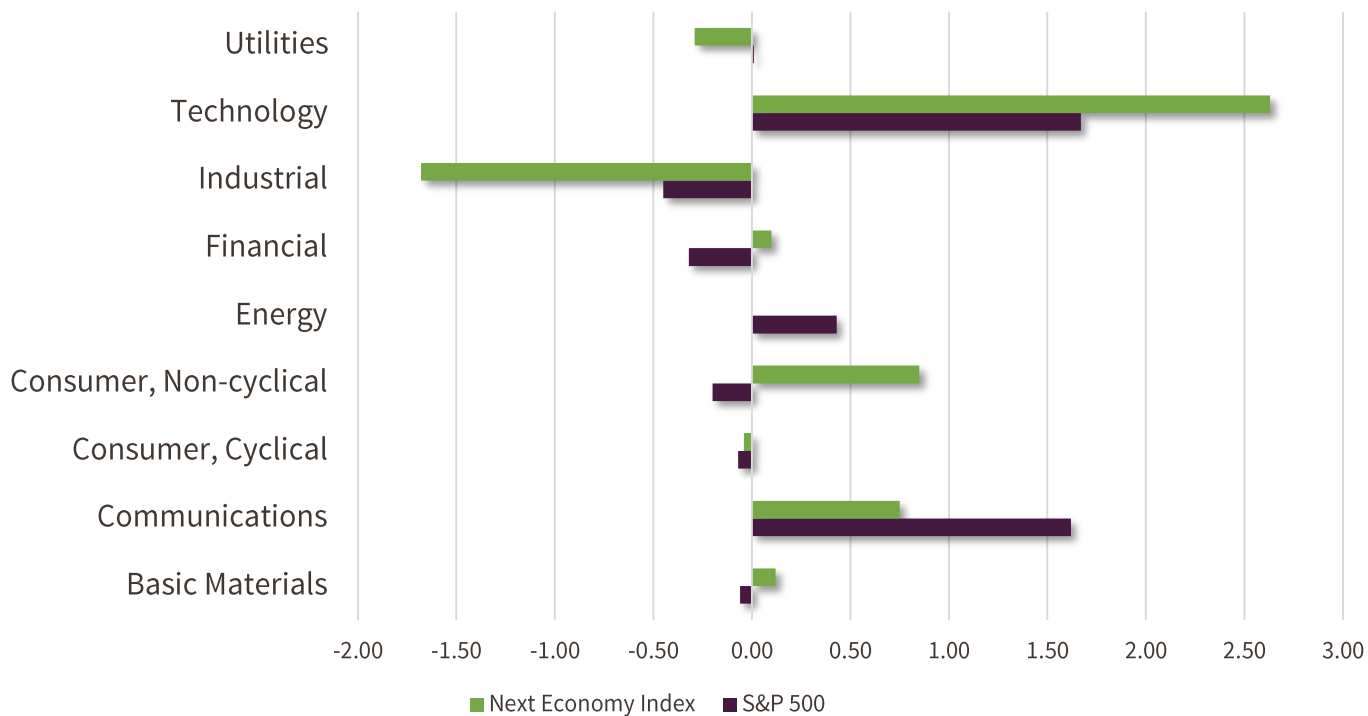
Performance History & Sector Attribution

For commentary, see pages 7 - 9.

Performance History



Year to Date 2018 Sector Attribution by BICS^{††}



[†] Bloomberg consensus estimates

^{††} Bloomberg Investment Classification System

All returns presented above that are greater than 1 year in length have been annualized. 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. Next Economy Index performance results reflect actual performance for a representative account, net of actual management fees and transaction costs. Assets managed in the Next Economy Index strategy representative account receive a reduced fee from the standard fee schedule. Next Economy Index performance results do not reflect the reinvestment of dividends and interest. Extreme periods of underperformance or outperformance are due to the concentrated nature of the strategy and the impact of specific security selection. Such results may not be repeatable. Please see more important disclosures on the final page of this document.

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 – 2nd Quarter

Company Name	Ticker	Average Weight	Stock Price Return	Contribution to Portfolio Return
Exact Sciences Corp.	EXAS	1.27%	48.25%	0.47%
Square, Inc.	SQ	1.82%	25.28%	0.41%
Tesla, Inc.	TSLA	1.44%	28.87%	0.37%
Seattle Genetics, Inc.	SGEN	1.36%	26.84%	0.34%
SunRun, Inc.	RUN	0.84%	47.26%	0.33%

Five Largest Detracting Stocks – 2nd Quarter

Company Name	Ticker	Average Weight	Stock Price Return	Contribution to Portfolio Return
LG Display	LPL	0.99%	-31.90%	-0.36%
First Solar, Inc.	FSLR	1.26%	-25.81%	-0.35%
Applied Materials, Inc.	AMAT	1.60%	-16.61%	-0.28%
Acuity Brands, Inc.	AYI	0.88%	-16.67%	-0.18%
Canadian Solar, Inc.	CSIQ	0.65%	-24.77%	-0.17%

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. Given differences in account sizes, custodial fee arrangements and other client-specific factors, not all accounts invested in the Next Economy Index 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

Q2 2018 in Review



Q2 2018 saw more than the usual amount of market reverberations emerge from macro policy. First and last on that list: tariffs and the fear of full-blown trade wars.

It has been a year since the Trump administration withdrew the United States from the Trans-Pacific Partnership (TPP), a free trade agreement for nations around the ring of fire. This has had its effects on corporate America, such as Harley-Davidson CEO Matt Levatich [said](#) “We were very optimistic about what the TPP would enable for Harley-Davidson. It took seven years for it to come to fruition. We could see the writing [of the US withdrawal] on the wall, and we got busy with Plan B.” Plan B was to build a plant in Thailand and close its plant in Missouri. Markets largely shrugged all that off in 2017, but in Q2 2018, things got a lot worse for global trade, and markets noticed.

In Q2, the administration threatened to impose tariffs on up to \$450 billion of Chinese imports and began imposing some of them, including large tariffs on steel and aluminum that affect America’s closest allies in Europe and Canada.

Of course, these threats and actual trade taxes did not go unanswered. In June, Europe imposed higher taxes on consumer goods made in the U.S., including products from jeans to motorcycles, in response to White House tariffs on European products. Worse yet, the US’s new trade policies seemed to galvanize the world into a stance of unified retaliation. “European and Chinese officials have formed an unlikely team at the World Trade Organization,” is how *Business Insider* [put it](#), and many nations and companies are now suing the U.S. in courts and at the WTO. Reuters [reports](#) that “Trump’s trade policy, labeled ‘medieval’ by former WTO head Pascal Lamy, has inflamed international opinion this year.”

As the Tax Foundation, an independent tax policy nonprofit, recently [wrote](#), “Trade barriers such as tariffs raise prices and reduce available quantities of goods and services for U.S. businesses and consumers, which results in lower income, reduced employment, and lower economic output.” That’s exactly what markets fear.

What have the market effects been so far? Mostly, increased volatility. Days with news of increased trade tensions see markets consolidate; days with more hopeful news, or at least no trade news, have been pretty good.

Another effect has been a flight to US small and mid caps on the theory that smaller firms are not as exposed to global trade, and therefore not as vulnerable in a trade war. US small cap indexes have roughly doubled the returns of large caps during the quarter as a result. Green Alpha views this trading thesis as spurious, as markets will quickly realize that small and midcap firms depend on global commerce and global supply chains as much as large and mega cap firms.

Today, the news is full of stories about smaller firms suffering under newly-imposed tariffs, such as [layoffs at a nail-finishing company](#) in Missouri that imports steel from Mexico, but now must pay the 25% tax for their basic material. Harley-Davidson, a solid mid-cap at ~\$7.1 billion, is [moving some production overseas](#) to avoid retaliatory tariffs from the EU, costing American jobs. Smaller firms may in fact be more vulnerable as they have less capacity to weather periods of higher input costs, likely less access to capital, and higher costs of capital to bridge the gap during periods of lower revenues.

As risky as these developments are, they are small blips in the context of Green Alpha’s investment thesis. Our thesis—that innovations driving productivity gains and tackling economic risks are the best sources of wealth generation—is perennial. As [we’ve said before](#), trade sparring may influence which nation takes the lead and benefits most from technological progress, but it will not shift the trajectory of innovation itself. As a result, we hew closely to our thesis under all market conditions. (*continued on page 8*)

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Manager Commentary (cont.)

Q2 2018 in Review

Some key developments within the Next Economy:

Infrastructure inflection point: Traditional infrastructure—like bridges, roads, water mains, and water treatment—desperately need upgrades. Companies that supply and utilize waste-to-value materials, like recycled steel, are meeting critical infrastructure and sustainability needs. Infrastructure construction saw an uptick in Q2 and is [forecast to be up overall in 2018](#) versus 2017.

In less-traditional infrastructure, Q2 saw the [increasing development of infrastructure as a service \(IaaS\)](#) from major tech firms. Data ownership and management are key to today's global economy. As such, the tech-driven economy also requires infrastructure to support the twenty first century's most precious commodity: data. Global fiber networks, wireless networks (including 5G), cloud services, and satellite communications (including internet) will continue to be key areas to watch.

Is genomics investment-worthy? Genomics technology continues to achieve significant medical and scientific breakthroughs. For investors, new opportunities and risks are unfolding in diagnostics, treatment and direct IP resulting from the development of gene-editing techniques. Although potentially transformative for medicine and human as well as biosphere well-being, the industry faces some political headwinds and both questions and backing from sustainable and impact investors. Q2 saw some [major advancements](#) that lead Green Alpha to believe in the long-term ability of a selected basket of related stocks to drive long-term performance with periods of significant volatility along the way.

U.S. China solar flare-up: China's recently announced changes to national solar policies have rocked the global PV market. With the resulting oversupply of panels, prices may fall 35% or further—more than nixing the impact of U.S. trade tariffs. Stock prices of panel manufacturers are following suit, offering some fantastic buying opportunities for investors.

Adding to the momentum, the US Internal Revenue Service handed down new [guidance](#) in Q2 allowing solar developers to claim a 30% investment tax credit on any project they begin by the end of 2019 and complete by 2023. Since the US administration's section 201 tariff on panels sunsets in February 2022, this means developers can both enjoy their ITC tax credit and avoid nearly all tariffs on imported panels.

Such positive developments for solar have thus far gone under-appreciated in the markets, making them perfect examples of how [information asymmetry](#) provides juicy opportunities for the vigilant investor. Long-term, solar's prospects shine bright.

Battery tech fully charged: With their ability to power electric vehicles and offer dependable electricity storage, batteries are exponentially growing. Storage can provide a critical service during sudden electricity demand peaks and offers stability in the presence of intermittent renewable energy. Due to improvements in technology and increases in scale of battery production at an increasing number of companies around the world, the price of lithium-ion battery storage has fallen from US\$1,000 per kilowatt hour of storage (kWh) in 2010 to US\$209 per kWh in 2017, [according to](#) Bloomberg New Energy Finance. That price is [projected](#) to fall to less than US\$100 per kWh by 2025, making both grid storage and EVs much less expensive, potentially catalyzing explosive demand.

In Q2, China made announcements about their [commitment to growth in energy storage](#) technologies, which may overtop the rest of the [world's combined production capacity](#) (this may or may not be possible as plans for large-scale battery production continue to grow worldwide). *(continued on page 9)*

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Manager Commentary (cont.)

Q2 2018 in Review

Gender and diversity investing elevated: Gender and diversity investing is one of the fast-growing categories of sustainable and impact investing, with public equity assets in these strategies [growing](#) from \$100 million in 2014 to more than \$900 million in 2017. Investors have been encouraged by diversity-focused research, which demonstrates that diverse management teams outperform homogeneous groups in material ways, from creative problem solving to executing on short- and long-term goals.

While increases in the percentage of women in top management positions and on corporate boards [has stalled](#), female inclusion and influence continues to materially increase across Green Alpha's Next Economy universe.

While some investment vehicles overtly focus on gender, all portfolio managers should be evaluating the quality of a company's leadership, including their diversity and social inclusion efforts. Just as analyzing a company's material sustainability efforts shouldn't be relegated to a 'niche market,' examining the quality of a company's leadership should be taken seriously. Leadership impacts every company and the likelihood of an investment's success – no matter the sector, market-cap or domicile.

Next Economy Index - Portfolio Commentary

- Up 2.23% for Q2 2018, our oldest and most comprehensive portfolio's performance was driven primarily by gains in the Consumer Non-cyclical sector, which contributed 1.41% to portfolio return during the quarter.
 - Biotechs were responsible for half of Consumer Non-cyclical's contribution to the Index at 0.71%. Genetics-based diagnostics and therapies to treat cancer and other diseases were particularly strong in the quarter.
- Consumer Cyclical added 0.58% to portfolio return during the quarter.
 - Contributed entirely by electric vehicle manufacturers, as the global growth in EV sales—led by China—continued to outpace growth in sales of traditional internal combustion vehicles.
- The largest negative contribution during the quarter came from Industrials, detracting 0.73% from portfolio performance during the quarter.
 - The entire 0.73% negative contribution came from firms providing IP and manufacturing for displays in flat-panel TVs, smart phones, notebook computers, and monitors, among other applications.
 - Trade concerns (justified) and speculation (misguided, in our opinion) about the plans of the world's largest smartphone OEM by market cap combined to bring down flat-panel-related firms' share prices.
- Negative contributions secondarily came from the Energy sector, detracting 0.24% from portfolio performance, but here, results from individual holdings were particularly mixed.
 - Solar installers benefitted from expectations of lower input costs and favorable policy to perform strongly in the quarter, adding 0.33%.
 - Advanced materials makers that provide material inputs to wind turbine blade manufacturers also contributed to the quarter's return at positive 0.17%.
 - Some (not all) solar panel manufacturers suffered from tariff concerns and expectations of decreased abilities to maintain average selling prices, the net contribution of their mosaic performance was to detract 0.69%.

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- Dividend information for the Growth & Income Portfolio: The dividend yield for the trailing twelve months (TTM) for the Growth & Income Portfolio included a significant one-time special dividend distribution by TerraForm Power, Inc. The TTM dividend yield for the portfolio (6.02%) was materially higher than the current dividend yield (4.88%) as a result of the special dividend. The current dividend yield is shown in addition to the TTM dividend yield as a more appropriate reflection of the portfolio's current dividend yield as of June 30, 2018.
- All performance and characteristics data 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.
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- 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 23 emerging markets countries. With over 8,600 constituents, the index is comprehensive, covering approximately 99% of the global equity investment opportunity set. Investors cannot invest directly in this index.
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