

Sierra Club Green Alpha

Fourth Quarter Review • December 31, 2017



Green Alpha[®]

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Why Invest in Sierra Club Green Alpha?

- An actively managed, long-only equity strategy operating in compliance with the Sierra Club's rigorous social and environmental criteria and Green Alpha's Next Economy™ portfolio construction methodology
- Invests solely in innovative solutions to core economic and environmental risks
- Fossil fuel free since inception

Inception Date: December 27, 2010

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: Sierra Club Green Alpha

The Sierra Club® Portfolio is a unique blend of Green Alpha's Next Economy process and the Sierra Club's proprietary environmental and social investment criteria. Green Alpha is proud to be the only financial services firm allowed to utilize the Sierra Club's rigorous criteria. By pairing this criteria with our Next Economy investing philosophy, we together create what must be the most progressive investment portfolio available. As a result of this process, every portfolio holding is a forward-looking, Next Economy innovator with a Sierra Club-approved environmental and social history. Sierra Club Green Alpha portfolio holdings consist of U.S. and internationally domiciled companies whose shares trade on U.S. exchanges. It is an actively managed strategy that seeks long-term capital appreciation, and typically holds 30 to 40 companies. Like all Green Alpha portfolios, the Sierra Club Green Alpha portfolio 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.

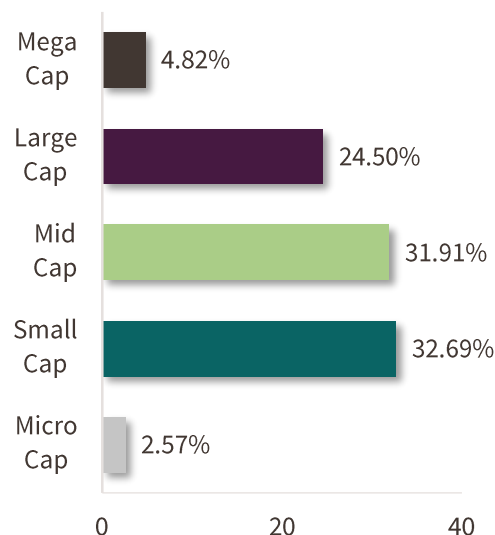
Portfolio Overview: Sierra Club Green Alpha

Portfolio characteristics, how they compare to other portfolios, and allocation by market cap

Sierra Club Green Alpha Characteristics

- **Sierra Club® approved** – the only portfolio available on the market that utilizes the Sierra Club’s rigorous social and environmental criteria
- **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

Equity Allocation by Market Cap



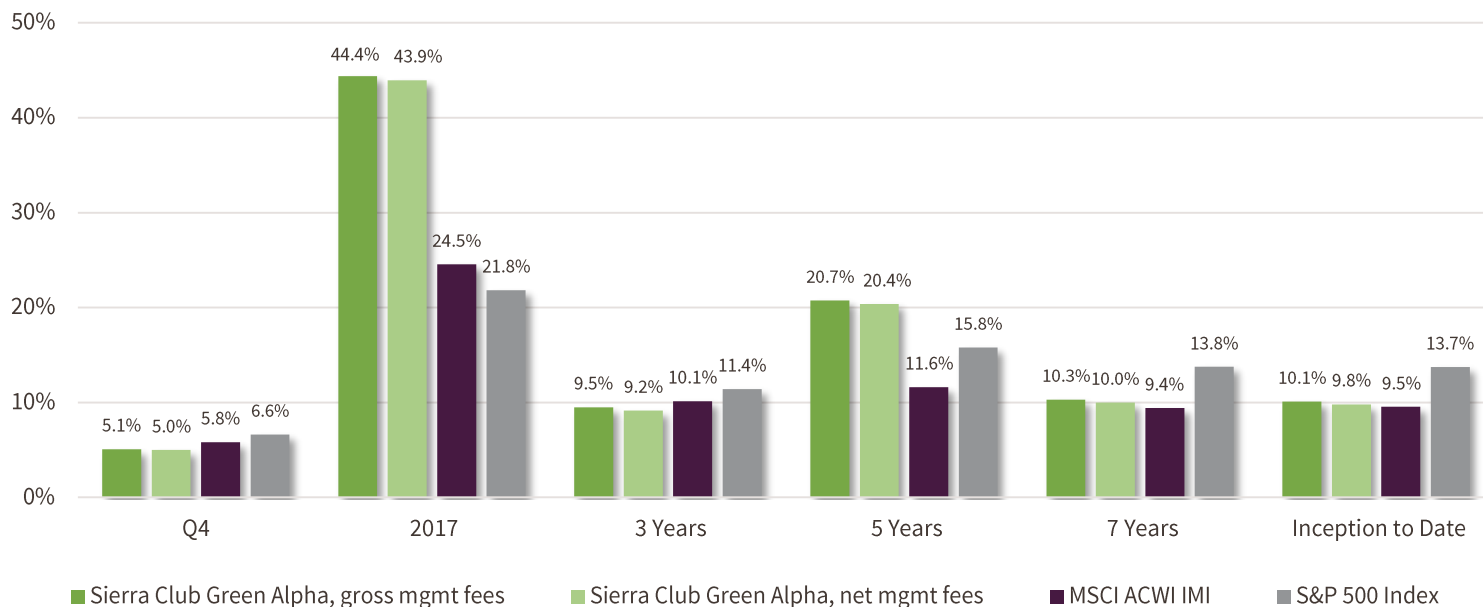
Characteristics	Sierra Club Green Alpha	Benchmark: S&P 500	Green Alpha Next Economy Index	Green Alpha Growth & Income	Green Alpha Next Economy Select
# of Securities	33	500	95	30	52
Sales Growth, 1-Year Trailing	13.69%	9.77%	16.17%	9.53%	14.02%
P/E, Current	42.02	32.95	38.82	44.26	36.32
P/E, 1-Year Forward†	30.20	22.13	31.67	30.67	24.48
Price/Sales	1.22	2.23	1.71	2.06	1.01
Price/Book	2.05	3.30	2.92	2.18	2.03
LT Debt/Equity	0.53	0.87	0.58	0.94	0.59
Current Ratio	3.55	2.10	2.92	2.58	2.96
Dividend Yield	1.25%	1.89%	1.63%	4.70%	1.86%
US Domicile	65.66%	100%	75.96%	74.35%	63.87%
Non-US Domicile	30.82%	-	22.97%	23.24%	27.70%
Cash	3.52%	-	1.07%	2.41%	8.43%
Market Capitalization Weighted Avg (US\$B)	49.04	197.05	59.42	20.17	35.48
Turnover, 1-Year Trailing	19%	-	19%	32%	24%
Beta, 1-Year Trailing	1.40	1.00	1.22	1.08	1.21

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Manager Commentary & Performance History

2017 in Review

Performance History



Welcome to our review of the Next Economy in 2017. In 2017, markets held up in spite of uncertainties, and Green Alpha strategies performed particularly well, outpacing major benchmarks, and our assets under management grew substantially to \$112 million. So, what was relevant about our Next Economy investment thesis in 2017?

For those of us who don't live and breathe Next Economics, a refresher may be useful. Next Economics rests on the idea that the global economy is becoming ever more efficient and productive as it 1) increasingly incorporates tech-leveraged innovation and 2) moves to minimize the global risks that threaten the economy's ecological and social underpinnings and, as a result, economic growth. In its ultimate realization, the economy will be efficient enough that it can provide good standards of living for everyone without overtopping any of these tolerances, thereby preventing probable systemic collapse. By generating long-term wealth via risk-mitigating products and services – rather than short-term wealth via risk-exacerbating industries like fossil fuels – it is possible to achieve an economically, environmentally, and socially “sustainable” economy.

In terms of portfolio construction methodology, we take a private equity-like view of public equity investing in that we seek the best growth opportunities representing the most innovative, dynamic, risk-solving, and fast-growing companies, often tech-leveraged, that we can identify. Therefore, our strategies are all cap, cross sector, cross industry, and global. As such, our portfolios don't lend themselves to comparison with any individual benchmark. Indeed, as a matter of thesis, we believe that most traditional benchmarks reflect the inefficient legacy economy as much as, and probably more than, they do the highly productive Next Economy. Not only do our strategies not correlate especially closely with most traditional benchmarks (apart from definitional equity correlation), we don't especially want them to; correlating with the legacy economy is not within our mission. *Cont. on Page 4.*

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. Sierra Club Green Alpha performance results reflect actual performance for a representative account, net of actual management fees and transaction costs. Assets managed to the Sierra Club Green Alpha strategy in the representative account receive a reduced fee from the standard fee schedule. Sierra Club Green Alpha 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 page 8 of this document.



Manager Commentary (cont.)

2017 in Review

Since our thesis holds that Next Economy innovations will increasingly gain market share from their legacy economy predecessors and counterparts in any given industry, we believe that our strategies should, within the additional context of stock selection, realize this lack of correlation as an ability to earn alpha over the long term versus traditional index benchmarks. Over time, we anticipate broad market index turnover to reflect the growing scale and number of representatives of Next Economics in the global economy, and therefore the differences between the output of our thesis and major market indices will become less. This will be a decades-long process.

Common threads of 2017 among Green Alpha portfolios

What, then, are the primary portfolio drivers of ever-increasing, sustainable productivity? In 2017, tech-leveraged innovation and cheap renewable energies led the charge. The global economy is increasingly characterized by automation, machine learning and AI, robotics, connectivity for all smart objects, and waste-to-value based resource management – all powered by true renewables like wind and solar. Unsurprisingly, the leading companies behind these inventions have been growing. More detail about specific sectors and industries can be found below within each strategy's review, but let's begin by looking more closely at renewable energy, the cornerstone of an indefinitely sustainable economic system.

We're keen to own leaders in renewable energies since overall, renewable generation remained one of the fastest growing global industries in 2017. Solar is [poised to install 108 GW](#) of new capacity in 2018 – up from [9 GW in 2007](#). Don't expect these trends to slow down. [According to Bloomberg](#), “Electricity demand worldwide grows 58% to 2040 and this is met by a doubling of installed capacity to 13,919GW in 2040 from 6,719GW today, with wind up 349% and solar expanding a whopping 14-fold.” In this light, we have to agree with the energy journal [TerraJoule](#), which recently observed (December 18, 2017 edition) that “while surprising, it's not complicated: two technologies for capturing energy (wind + solar) were comically uneconomic for 30 years and, now, are dangerously competitive. Moving the world economy steadily towards the power grid is, by definition, a process whereby the next unit of GDP is far likelier to be created on the platform of electricity, rather than oil.”

In the case of renewables in particular, one additional factor supported share prices in 2017: increasing demand for the stocks themselves. This could have been the result of expanding acceptance of renewables as the soon-to-be primary energy source for the global economy, pro-sustainability galvanization in the face of destructive U.S. policy, or, most likely, some combination of the two. Although the world emitted [historic levels of CO2 in 2017](#), renewable power and electric transportation had meaningful impacts, and are now transforming the global system, with both industries consistently and significantly outstripping expectations and forecasts. Wind and solar are now making power so inexpensively and growing deployments so fast, *Wired* magazine has gone so far as [to say](#), “clean energy... is, in effect, the new Silicon Valley—filled with giddy, breathtaking ingenuity and flat-out good news.” On the tech progress front, a [recent headline](#) from *Vox* proclaims “Solar panels have gotten thinner than a human hair. Soon they'll be everywhere.” We agree, and we believe that, as a result, there is no clear long-term path for demand growth in fossil fuels. For a detailed round up of the remarkable business advances in renewable energies and electric vehicles, see Michael Liebreich's “[Long-Term Clean Energy Optimism, Short-Term Caution](#).”

So, after a long time in the doghouse, many of our energy positions finally saw sentiment turn positive in 2017.

Renewable energies weren't the only sector where Green Alpha portfolios returns were propelled by greater-than-average market demand for Next Economy stocks; we also saw this phenomenon in technology, industrials and some consumer non-cyclicals.

Cont. on page 5.

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

Manager Commentary (cont.)

2017 in Review

This was the result of one key factor: better than expected business results, leading to frequent upside revenue and earnings surprises from companies across our strategies. As the best positioned and most productive denizens of the Next Economy continue to gain market share from their legacy economy predecessors, we expect this trend to generally continue over the long term. As with renewables, we may have also seen a shorter-term increase in portfolio constituents' share demand resulting from backlash against political efforts to undermine progress towards general and economic sustainability, but this is harder to quantify.

Within each sector, we of course select only representatives of the future economy. In utilities, that means renewables-generated electricity providers and responsible water custodians. For financials, that means firms that provide financing for renewable energy and efficiency projects. In industrials, makers of stainless steel and connected water infrastructure, providers of efficient displays for phones and other devices, and makers of highest quality decking material made from recycled plastics, all of which made meaningful 2017 return contributions. Yes, we do invest in traditional sectors. No, we don't always or even frequently select the traditional candidates.

Clearly, some things don't change from year to year; innovative companies and their problem-solving ideas remain integral to our Next Economy thesis. However, the Next Economy's results can emerge differently across portfolios due to distinct portfolio construction goals, so let's take a brief look at performance by sectors for the portfolio.

When reading the portfolio-specific comments below, we recommend examining since inception performance chart details on page three and the sector attribution chart on page six. These provide visuals to aid the description below.

What you won't find below is an explanation of why a particular sector had a negative contribution to the portfolio's return for 2017, because none of the 10 sectors, as defined by the Bloomberg Investment Classification Scheme, had a detracting effect on any of our portfolios.

Sierra Club Green Alpha – *Please refer to page 6 for Sector Allocation and Attribution charts*

The Sierra Club Green Alpha portfolio is unique to all portfolios available in the marketplace, because it applies the Sierra Club's proprietary investment criteria to our Next Economy universe. Our exclusive right to use these environmental, social and corporate governance criteria provides an interesting lens through which to view what we believe is already a very forward-looking, sustainability-focused universe of investable companies. The practical effect of these criteria is to exclude most large- and mega-cap stocks in the Green Alpha universe and to limit the number of older, more established firms. The portfolio is also more concentrated than the Next Economy Index or Next Economy Select portfolio, holding between 30 and 40 stocks. Taken together, these factors represent the real possibility of more portfolio volatility over a given time period than the Index or select portfolios. In a strong performance year, that means Sierra Club Green Alpha has a good probability of being Green Alpha's best performing strategy, and this was indeed the case in 2017.

Renewable energy is the heaviest weighted sector in Sierra Club Green Alpha at an average 28% of the model portfolio over the year. Even though the industrials sector (~17% weight) outperformed energy in absolute terms in Sierra Club Green Alpha, energy was the portfolio's top contributing sector, followed by industrials (including LED-producing machinery, high quality recycled decking material). Technology and the consumer cyclical (including electric vehicles, sustainably sourced and constructed furniture) sectors also provided meaningful contributions.

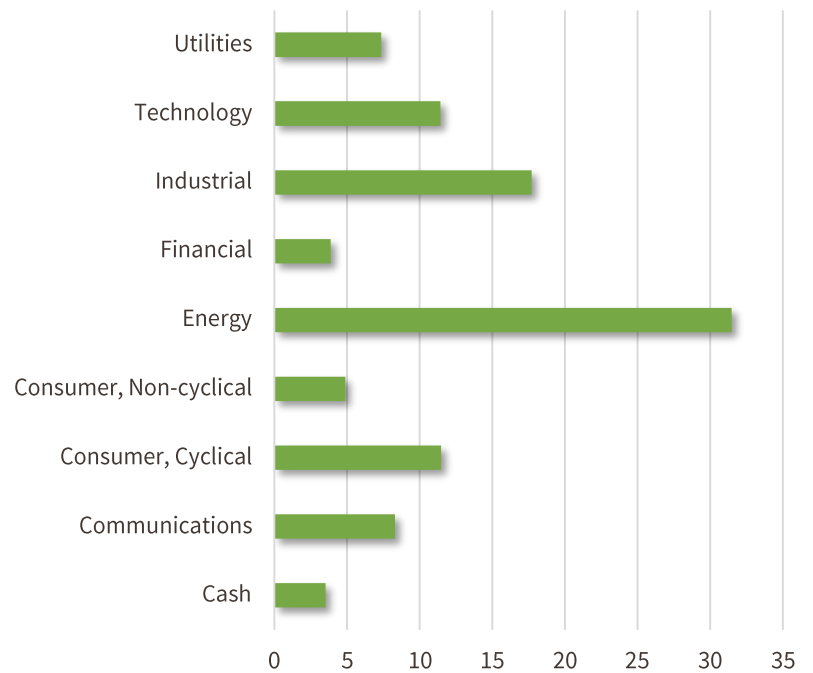
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Sector Attribution & Top Ten Holdings

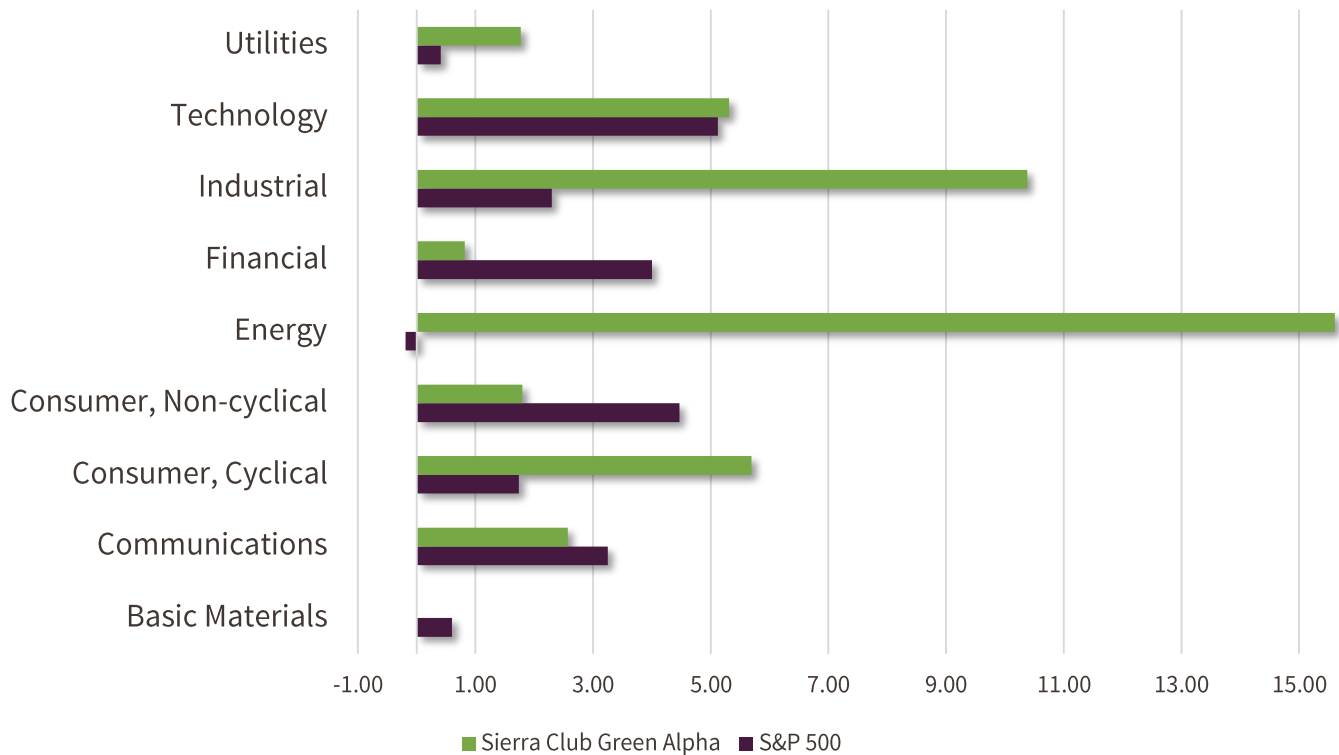
5 Largest Sierra Club Green Alpha Holdings

Company Name	Weight
First Solar, Inc.	7.38%
Kandi Technologies Group, Inc.	5.48%
Universal Display Corp.	5.12%
8Point3 Energy Partners	4.79%
Pattern Energy Group, Inc.	4.58%
Top 5 Total (% of portfolio)	27.35%

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



YTD 2017 Attribution by BICS^{††}



[†] Bloomberg consensus estimates

^{††} Bloomberg Investment Classification System

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Attribution

5 Largest Contributing Stocks – 4th Quarter

Company Name	Average Weight	Stock Price Return	Contribution to Portfolio Return	Comment
First Solar, Inc. <i>FSLR</i>	6.42%	47.17%	2.48%	Exceeded revenue growth expectations; sold out production capacity through first half of 2019; announced production of Series 6 panels for utility-scale solar (17% efficiency, more watts/lift than other CdTe panels); not subject to Section 201 trade case
Universal Display Corp. <i>OLED</i>	4.74%	34.02%	1.32%	OLED benefitting from mass adoption of organic LEDs as the IP/patent leader; high margins relative to peers
SolarEdge Technologies, Inc. <i>SEDG</i>	3.52%	31.52%	0.95%	Macro tailwinds of 97GW solar installed in 2017, driving record micro-inverter sales for SEDG as the IP/tech leader, management executing by translating cash flow to both earnings and high levels of R&D to stay ahead
Kandi Technologies, Group <i>KNDI</i>	6.03%	18.26%	0.91%	Clarity around Chinese Gov't incentives rebounded sales, combined with tough new smog rules and Chinese Gov't announcing ban on internal combustion engines on unknown future date
Trex Company, Inc. <i>TREX</i>	4.17%	20.34%	0.75%	Record sales reflect strong demand for residential products as waste-to-value efficiency gains market share from traditional wood market; strong conversion from sales to beat earnings expectations

5 Largest Detracting Stocks – 4th Quarter

Company Name	Average Weight	Stock Price Return	Contribution to Portfolio Return	Comment
Vestas Wind Systems, Inc. <i>VWDRY</i>	3.70%	-23.47%	-1.08%	Despite record turbine & service orders, anti-renewables market sentiment and political headwinds punished share price
Advanced Energy Industries <i>AEIS</i>	3.00%	-16.44%	-0.49%	Share price of AEIS dropped 10/30 due to volume of sell orders, despite announcements of revenue and earnings growth, the market also reacted poorly on 12/29 to CFO resignation
Pattern Energy Group, Inc. <i>PEGI</i>	4.82%	-9.09%	-0.49%	Threat of removal of Production Tax Credit hurt PEGI's share price during the quarter; action didn't materialize & threat is now gone
Itron, Inc. <i>ITRI</i>	2.93%	-11.94%	-0.38%	Market reacted poorly to Silver Spring Network acquisition over concerns of ability to execute while integrating new business; increased debt for acquisition; solid additive potential if management executes on plans
Orasure Technologies, Inc. <i>OSUR</i>	1.69%	-16.18%	-0.35%	Investors took profits after strong share-price run-up, driving valuations back down to industry norms; continued organic growth of existing revenue lines & investing in new products

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 Sierra Club Green Alpha strategy 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.

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- 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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