



Q3 2019 Quarterly Report: WilderHill Clean Energy Index®, September 30, 2019

The Clean Energy Index® (ECO) began 3rd Quarter 2019 near 61, and it ended Q3 near 60, down roughly -2%. ECO began 2019 near 44, so a fuller first 3 Quarters shows more volatility, YTD up roughly +35%. Or since 2017, when ECO Index® was near 38, last nearly 3 years it's risen some +58%. An independent tracking fund at start of 2017 was near 18.5, start of 2018 was near 25.5, start of 2019 was near 21.5, and more recently it closed Q3 near 29.0.

Since 2017, there's been increases here. And yet ECO passively captures an emerging volatile theme, so it can & does at times also 'drop like a rock.' Big gains have occurred before here - as well as bigger declines. Plus we offer a mere observation: it's counter-intuitive perhaps yet this ECO theme has spiked well up at times during a George Bush Jr. & a Trump Presidency - though neither greatly promoted green energy - meanwhile, some very large drops were seen over the 8 years of an Obama Presidency that instead had favored this sector.

Looking farther back at this benchmark ECO Index® live since 2004 and first for climate solutions, last 5 years it's down some -15%. Yet over these same 5 years, key 'dirty energy' themes are down far more than that, as fossil fuels plunged. Coal rose some 2016/2017 yet is off here around -40% so trailing far behind ECO, oil's story is off -60%, natural gas off -70%. Coal, oil, & gas all fell much, much more, than 'green' energy last 5 years. Last 10 years saw big drops across energy and in ECO, with high-CO2 fossil fuels down most. So far in 2019 the green, clean themes - and especially solar - have seen strongest gains year to date.

Clean energy seen worldwide captured both by WilderHill® New Energy Global Innovation Index (NEX in a big portrait mainly outside the U.S.) - & by another global Index (not ours) with fewer constituents - have both traded places last 5 years, 10 years and more - they're also visibly 'less down' last 5 years relative to many passive Indexes & active energy Funds. Lately they're even back to nearer nil, in stark contrast to fossil fuels still far down.

These performances since 2004 show the traditional energy fossil fuels of old: oil, coal, & natural gas, arguably no longer cover a broadening energy story. We thus hypothesize that clean energy has become more than 'niche'; the ECO Index® theme now stands on its own - & addresses climate change solutions to boot. Plus, ECO displays some notable non-correlation vs. the fossil fuels, that can help to diversify a model portfolio.

Long-anticipated, yet something of a late-Q3 surprise was an attack in Saudi Arabia that spiked world oil prices in an acute reminder of oil supply-risk. In sum ECO Index® that's oldest, best-known clean energy benchmark closed Q3 near nil. Below & volatile as usual as it can move several percent in a single day, is ECO over most of these past 12 weeks:

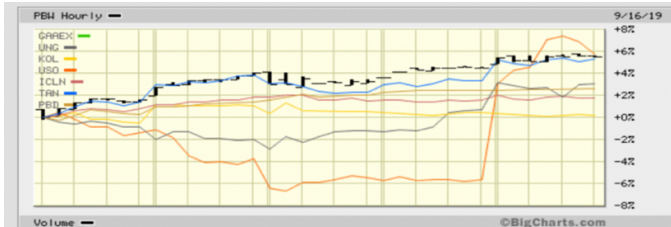


Source: NYSE.com

A word about that brief, roughly 5% newsworthy curtailment of world oil supply late-in-Q3 after oil attacks at Abqaiq-Khuras in Saudi Arabia, damaging facilities needed to turn sour crude sweet by cutting sulphur. Yes, developed nations are now better able to cope as via strategic oil reserves. And yet. Even that brief shortfall spiked oil prices 1st trading morning after, and highlighted chronic vulnerabilities feared for years. It shone a light on unsolvable fragility in oil's long supply-chain, an unhealthy dependence & brittleness. Once live trading did resume on that first trading morning, Monday, fear in oil was acutely on display.

What happened in trading that first-day after the weekend attack, and did it seep into greener themes? As said oil's price jumped early Monday (moderating later that day) as one might expect. Was clean energy & solar as impacted, as was oil, first-trades Monday morning? In a word, no. Clean energy & solar-alone already had climbed last 4-days (more than oil) and all 3 then closed up some +6% as seen in this 5-days Chart. But Oil needed a jump of some +14% just on Monday to get there too - oil having been off some -6%. It's jump took oil to near the same place as more steadily gaining clean energy & especially solar those past 5-days:

5 Days to / including first Day of Trading after the attack:



Source: bigcharts.com

Then afterwards, clean energy ECO saw only modest uptick of +1% on Monday, Sept. 16th. (Natural gas, and coal were little effected). What moved up most within ECO on Monday? Six solar-arena stocks moved up some +3% to +6% each, so unremarkable. There was modest gains in NEX too 'only' to +6%, mainly in solar. Interestingly perhaps, next trading day, Tuesday, solar jumped significantly - *after* time had passed to digest news, while broader clean energy gained somewhat too - while oil declined after a prior day jump. The 3rd day, Wednesday, all 3 themes were modestly down on a volatility more within 'regular' range. Late the following week clean energy & especially solar were moving arguably more on news inherent to their own sectors - such as on China's renewed subsidies, and its solar demand, etc.

Solar this year has been a volatile albeit outstanding 'star' within clean energy 2019, and its gains have dominated among ECO's 'winners'. ECO's constituents the most Up YTD were thus mainly in solar (some in fuel cells) so far. Meanwhile, most Down is devoid of solar: these have included a fuel cell maker suffering on issues specific to it, a biofuels producer hit by problems seen across that industry, like miners of crucial battery materials. (This is for a scenario applying to 2019; look back say past 5-years and solar etc was much different).

Or step back widely and consider a bigger picture, that oil *output* suffers a brittleness which stood out that Monday. It's much different, then, from clean energy's *output* that's far more distributed & resilient; no hostile attack is so able to curtail solar's power worldwide, to cut all electric cars' 'fuel', to hurt energy efficiency, to reduce gigawatts from wind globally etc. If in future say, oil's freely transiting a Strait of Hormuz comes into question, then that may hit oil globally again. Volatility due to oil's fragility, remains a problem there.

Moving on, next as usual we look backwards at last 12 Months, here from early Sept. of 2018 - to start of Sept. 2019 for several clean - and 'dirty' brown energy themes. (Unusual gyrations late-Q3 on an oil attack aren't in this chart nor others below ending before the sudden event). Differences between clean stories (our arena of focus) - vs. brown fossil fuels stand out.

Over this period, coal which is the brownest most CO2-laden story is most at bottom via a passive Index/tracker; coal's theme down here -25%. Just 'higher' (*yet still down, in fact) after some gap is oil, and so another fossil story is down in passive Index via tracker off about -20%. Down too here is a third fossil fuel story: natural gas that is here off yet 'only' by around -13%, although that's after some very big gyrations especially late last year.

Next 'up', near negative after a gap to nil is an active fund for alternative energy worldwide: it's about 0%. Just above it is an independent tracker for global clean energy mainly outside the U.S. as captured by the NEX Index and that's only just positive at up some +2%.

Moving up into positive territory is an independent tracker for clean energy ECO (bold), here up about +12%. Higher still is a different passive tracker for global clean energy (not ours) well up some +27%. And highest is a very helpful tracker for Solar-only, with a big 2019 runup it is near +37%. (And green energy goes higher still in Q3 after this Chart - clearly 2019 is positive Year to Date for these 4 green themes - while brown fossil fuels coal, oil, gas have lagged behind clean energy and solar). And as has long been seen passive clean energy Indexes are 'beating' an active-managed fund, likewise for global alternative energy.

Last 12 months:



Source: bigcharts.com

Next let's look back some 10 years, roughly a decade to early Sept. 2019 in a chart below. Included again are clean themes - as well as CO2-laden fossil fuels, coal, oil, natural gas. Perhaps unsurprisingly given its own past large gyrations and plummet, Natural Gas is the lowest at far bottom; even after 2018 gains, it's mired in a dive over ~90%! Although a famously big crash among many stocks saw a nadir Spring 2009, and that marked bottom for many non-energy stories since rebounding up - that's not so for energy. As seen next, many passive *energy themes* went on falling further, in years even after Spring 2009.

So Natural Gas is here at very bottom. Then 'up' albeit still down hard is a passive Oil theme, another fossil fuel story that's dived. Even with some ups, it's steeply off by some -70%.

'Above' those two is a passive Solar tracker: despite very large recent gains 2019 YTD, it's still well down over a decade some -60%. Hence this very nicely, clean & green Solar theme - like brown fossil fuels Natural Gas & Oil - are all well down if seen over a past decade.

Near those three and far down is passive Coal. Despite some halting rises it's also much down some -60%; that most CO2-laden energy story had earlier trailed by yet even more - but its tracker rose hard 2016 & 2017 while facing some pretty dismal economics. Once again it has faced headwinds since 2018, despite attempts to aid it by a recent U.S. Administration.

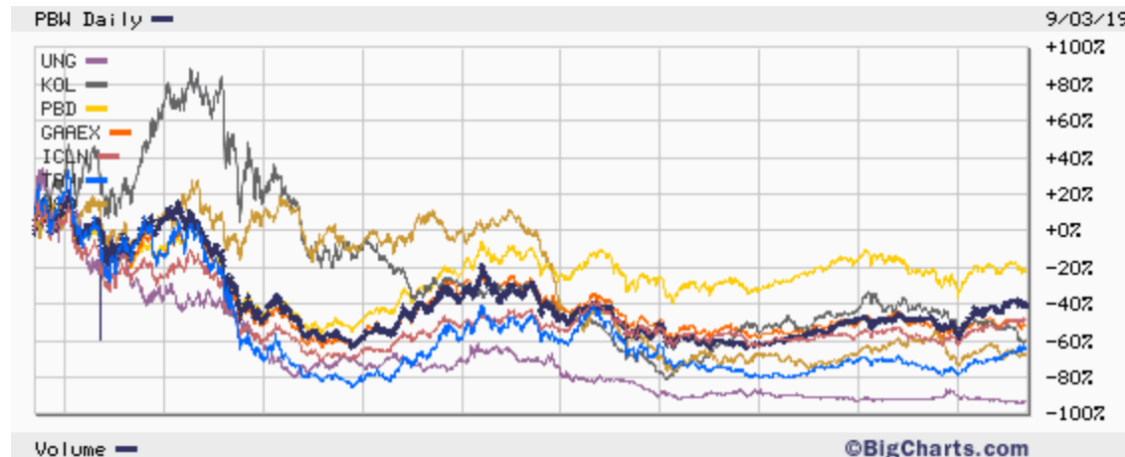
'Above' that is an active mutual fund for global alternative energy, down about some -50%. Near it is a passive tracker for a global clean energy Index (not ours), down too some -50%.

Above those is an independent tracker for clean energy (ECO) that's off some -40%.

After a sizable gap, so above 6 stories - we see global clean energy highest via passive NEX. That said *it's still down* here by some -20%. In sum ECO is down some -40% in a decade, even *after* rising hard 2019 YTD. Both ECO & NEX are down; Yes, **less so** than Natural Gas, Solar, Oil, & Coal, plus than an active fund for global alternative energy - yet they are *still down*.

On the other hand among these themes, global clean energy (NEX) did 'best' last ~10 years - with several other stories (especially dirty ones) showing big falls down 2x the NEX. We'd note too NEX & ECO long-term benchmark performances indicate here once again, it's been 'pretty tough for active-managed funds to beat passive the Indexes':

Last 10 Years:



Source: bigcharts.com

(Just parenthetically we observe broad (mainly non-energy) Indexes for markets generally like an S&P500, NASDAQ, or MSCI - neither seen nor discussed here as they capture far more than energy, did far, far 'better' past ~10 years. But they are very different; energy may be only some 5% or so of the weightings there in 2019; while we instead are firmly focused on a clean energy story that's maybe fast-emerging - and surely exceptionally volatile).

Given clean energy's own interesting stories, and ECO having the longest record since 2004, some thoughts here might be suggested. These echo a bit those posted for Q1 2006:

First, a notable jump seen here early in 2019, when ECO rose some +23% in just Q1, isn't the norm. Moreover such large one-sided volatility that's mainly to upside when starting from first trading days of 2019, was in part due to mathematical coincidence, one spotlighted by Start of new calendar year. Because it followed right after firm downward moves in Q4 2018, that prior action maybe also helped set a stage for some possible January 'regression to mean' (plus year had begun near a nadir, hence amplifying gains, especially within solar).

January/February and then June/July 2019 gains nonetheless are bound to be noticed going forward, in part since 'Year-to-Date' is such a universal way of measuring performance. To be sure at times one-sided volatility was something observed in spurts in a preceding early WilderHill Index too (it began informally calculating before 2000 albeit not on Wall Street); however as we always stress, dramatic downturns *Must also be Expected in an Index here* that may at times move sharply. Volatility, in short, is still part & parcel of clean energy.

A non-negligible, 'indefatigable' January/ February and again June/ July was also arguably grounded in some real causes. Consider that the results can be partly illuminated by elegant rotation of leadership in ECO, as different stocks were performing well at differing times. Specifically it was much in Solar and especially downstream stories in its value chain which turned in a distinguishing performance; they helped 'drag' ECO upwards – even on days broad markets or other sectors in this Index otherwise went sideways or downwards. Of course, this was seen in retrospect only, never when guessing ahead. Confounding investors is something that stock markets have done throughout history and will always do.

Of interest too in 2019 was robust non-correlation as between 1) WilderHill Clean Energy ECO - vs 2) the polluting oil, coal, and natural gas fossil-fuel stories. Unsurprisingly given pretty much a zero overlap as between 'green' themes in clean ECO - vs. those in the 'brown' Indexes for carbon-laden fossil fuels - they moved differently here right out the gate. Coal & natural gas both fell swiftly at start of the year. Oil at first jumped up, as did clean energy and especially solar, but then oil paused and it was soon falling at middle of year.

Hence early 2019 ECO Index had essentially 'de-coupled' from dirty energy Indexes by going much higher, sharply so in Q1- and staying there. ECO then saw further variance in Q2 by advancing a bit or declining relatively little, as dirty energy dropped back considerably. Solar was also up, more so; their's was a 'Tale of Two Cities' vs. fossil fuels to 3rd Quarter.

Striking non-correlation then for this ECO theme - vs. coal, oil, & gas is evident so far in 2019. And yet we'd emphasize volatile moves often up in Q1, Q2 Q3, may as easily go the opposite direction. Clean energy can (and must) go 'out of favor' anytime and we expect ECO to then also go sharply downwards, fulfilling its mission to "capture & track" moves in clean energy. We repeat ECO Index is designed to allow for volatility: it can & does also at times 'drop like a rock' going sharply negative. And unlike an active-managed Fund, as a passive Index we don't seek defensive positions if the Index may appear 'over-valued' - or if noteworthy stocks relevant to this theme seem overburdened with debt, so destined to fall. But then that very last point hasn't vexed; the record implies that active funds trying to 'pick stocks' or to 'spot a top' have over time faced enormous tasks trying to outperform passive Indexes.

Considering 2019's gains in varied aspects of clean energy's theme, what in particular rose within ECO last 52-weeks? For this, let's glance inside ECO at constituents mid-Q3 as of August 20, 2019, to see some names that had risen most sharply in those past 52 weeks:

Names/Activities within ECO well-Up off past 52-week highs to August 20, 2019 include:

- +840% *Enphase*, ENPH. Microinverters, also energy storage systems and software.
- +294% **Hydrogenics*, HYGs. Hydrogen, fuel cells, H2 storage. [*But a one-time move]
- +198% *SunPower*, SPWR. Solar, efficient PV panels have all-rear-contact cells.
- +178% *JinkoSolar*, JKS. Solar, wafers through solar modules, China-based OEM.
- +170% *Universal Display*, OLED. Organic light emitting diodes, efficient displays.
- +170% *SolarEdge Technologies*, SEDG. Inverters, makes solar optimizers, inverters.
- +160% *Daqo New Energy*, DQ. Solar, polysilicon/wafer manufacturer; China-based.
- +122% *Plug Power*, PLUG. Small fuel cells, for e.g. forklifts; drop in replacements.
- +100% *Ballard Power*, BLDP. Mid-size fuel cells; R&D, PEM FCs as in transportation.

Looking above one sees Solar has had remarkable gains, like microinverters, solar panels & more - as well as some in Hydrogen & Fuel Cells, and LEDs, with gains deep and strong. That is one reason a solar story so brightly in 2019 ... and yet... recall if looking back 10 years, or even just 5 years - then those same themes also experienced Quite Tremendous falls too.

What were some largest *Decliners* in ECO in this same 52-week period from their Highs?

Names/Activities in ECO well-Down, Off 52-week highs to August 20, 2019 include:

- 86% *Bloom Energy*, BE. Stationary fuel cells, distributed, but not-renewable energy.
- 78% *NIO Inc*, NIO. Electric vehicles, China-based, also other accessories.
- 67% *Renewable Energy Group*, REGI. Biodiesel, natural fats, oils, grease to biofuels.
- 66% *Livent*, LTHM. Lithium, and compounds for batteries and energy storage.
- 50% *American Superconductor*, AMSC. Wind, grid conditioning; superconductors.
- 47% *Chemical & Mining Co. of Chile*, SQM. Lithium, energy storage, large producer.
- 44% *TPI Composites*, TPIC. Wind Blades; also light-weighting for transportation.
- 41% *Tesla Motors*, TSLA. Electric vehicles, solar; pure-play EVs & energy storage.
- 40% *Albermarle*, ALB. Lithium, specialty materials in batteries; for energy storage.

A few thoughts may be occasioned by the above. One is fuel cells are seen in Highs & in Lows, with one newer manufacturer (with debt, warranty liability issues specific to it etc) in lows, while others in fuel cells gained. Or that for electric vehicles where batteries/energy storage are important - we see constituents from batteries, lithium, electric cars in a down list; that's not to imply anything negative as they may simply be off-gains, but these 52 weeks there was arguably more optimism for solar (after big declines last 5 years) - than EVs, batteries/storage. And it's very clear past performance does not in any way imply a future: recall past huge long slumps past 10 years vs. the recent gains in solar 2019 as ample evidence.

In global NEX, one sees too gains in solar and installers downstream - and not as much so for e.g. commodity producers of solar materials, silicon, or in battery lithium miners or semiconductors - where there's arguably been tough times upstream to cut costs - along with margin compression. Still, some downstream producers of renewable clean power like solar/wind farms have done well certain places. Next, here is a brief look inside global NEX, viewing most of its constituents ranked Year to Date to mid Q3; here is YTD to Aug. 27, 2019 omitting both new additions and the deletions that came at start of Q4:

Global NEX Constituents rank by Year to Date (YTD) to latter Q3 (to August 27) 2019,
 here minus 3 Q4 additions - as well as minus 9 coming deletion changes for start of Q4:

<u>Company Name</u>	<u>YTD Price PCT Change</u>
Total =	<u>26.9%</u>
Enphase Energy Inc	598.7%
SunPower Corp	162.0%
Solaredge Technologies Inc	133.2%
Daqo New Energy Corp	120.2%
Universal Display Corp	115.8%
eREX Co Ltd	108.5%
Vivint Solar Inc	105.0%
JinkoSolar Holding Co Ltd	94.4%
Ballard Power Systems Inc	75.9%
Xinyi Solar Holdings Ltd	74.2%
Plug Power Inc	71.8%
Falck Renewables SpA	65.8%
Canadian Solar Inc	57.3%
TerraForm Power Inc	51.2%
Orsted A/S	50.8%
Meridian Energy Ltd	48.6%
Landis+Gyr Group AG	45.8%
First Solar Inc	45.7%
Verbund AG	45.7%
Encavis AG	43.8%
Hannon Armstrong Sustainable Infrastructure	42.6%
Pattern Energy Group Inc	41.1%
Itron Inc	40.7%
Contact Energy Ltd	40.3%
PNE AG	40.3%
Mercury NZ Ltd	39.2%
Ormat Technologies Inc	38.3%
Xinjiang Goldwind Science & Technology Co	38.1%
Scatec Solar ASA	37.9%
Kandi Technologies Group Inc	37.5%
Nel ASA	37.1%
Sunrun Inc	36.3%
Gigasolar Materials Corp	35.7%
Veeco Instruments Inc	33.7%

Nibe Industrier AB	30.7%
CropEnergies AG	29.2%
Gurit Holding AG	28.7%
Signify NV	26.7%
Albioma SA	25.4%
TransAlta Renewables Inc	25.3%
Verbio Vereinigte Bioenergie AG	24.3%
EDP Renovaveis SA	24.2%
Boralex Inc	24.1%
Meidensha Corp	23.1%
Atlantica Yield PLC	22.7%
Neoen SA	22.5%
Nordex SE	22.5%
SMA Solar Technology AG	21.9%
BCPG PCL	21.7%
Sino-American Silicon Products Inc	20.1%
Innergex Renewable Energy Inc	18.4%
Northland Power Inc	17.1%
Motech Industries Inc	16.7%
Caverion Oyj	15.3%
Renewables Infrastructure Group Ltd	14.5%
Siemens Gamesa Renewable Energy SA	13.7%
Samsung SDI Co Ltd	13.5%
Credit Suisse Real Estate Fund Green Property	13.4%
Audax Renovables SA	12.8%
CS Wind Corp	10.9%
Ricardo PLC	10.5%
Greencoat UK Wind PLC	9.8%
Kingspan Group PLC	8.8%
Willdan Group Inc	7.3%
Vestas Wind Systems A/S	5.6%
Acuity Brands Inc	5.0%
Renova Inc	2.9%
Huaneng Renewables Corp Ltd	2.9%
Cree Inc	2.6%
Ameresco Inc	2.5%
United Renewable Energy Co Ltd	0.8%
Clearway Energy Inc	0.5%
GCP Infrastructure Investments Ltd	-0.8%
Osram Licht AG	-2.6%

West Holdings Corp	-4.3%
Novozymes A/S	-7.4%
Everlight Electronics Co Ltd	-8.0%
Tanaka Chemical Corp	-10.0%
Lextar Electronics Corp	-10.9%
Epistar Corp	-13.1%
Takuma Co Ltd	-14.1%
Canvest Environmental Protection Group Co Ltd	-15.3%
EF On Inc	-18.0%
GS Yuasa Corp	-22.2%
Byd Co Ltd	-23.8%
Seoul Semiconductor Co Ltd	-24.8%
Drax Group PLC	-24.9%
TPI Composites Inc	-29.3%
Tesla Inc	-35.7%
Meyer Burger Technology AG	-37.1%
Sociedad Quimica y Minera de Chile SA	-39.6%
Ecopro Co Ltd	-41.2%
China High Speed Transmission Equipment Group	-43.3%
W-Scope Corp	-49.5%
Nio Inc	-54.3%
Bloom Energy Corp	-55.9%
Renewable Energy Group Inc	-56.7%

NEX Index in the Past One-Year to September 3, 2019

Wilderhill New Energy Global Innovation Index (USD)



Source: Solactive.com

Conclusion:

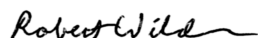
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3 Additions at ECO to start Q4 were Sunnova (NOVA) and Vivint (VSLR) in the Greener Utilities Sector, and Workhorse (WKHS) in the Energy Storage Sector; 1 Deletion removal was HYGs. Over at Global NEX, 3 Adds to start Q4 2019 were Tilt Renewables (New Zealand), Sunnova (U.S.), and Xinyi Energy (China); and there 9 Deletions were FDG Electric Vehicles (China), SPCG (Thailand), REC Silicon (Norway), Super Energy (Thailand), Unison (Korea), Wasion (China), GCL Poly (China), China Longyuan Power (China), and Voltabox (Germany).

As always, we welcome your thoughts and suggestions.

Sincerely,



Rob Wilder
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Appendix I:
ECO Index (via independent tracker PBW) Descending Weights in latter-Q3 on 9/13/2019,
about ~2 weeks before rebalance for Q4 2019, 37 Stocks*:

<u>Name</u>	<u>Symbol</u>	<u>Weight</u>
Ballard Power Systems Inc	BLDP	3.59
Itron Inc	ITRI	3.50
Enphase Energy Inc	ENPH	3.30
Pattern Energy Group Inc	PEGI	3.23
TerraForm Power Inc	TERP	3.22
Willdan Group Inc	WLDN	3.20
Plug Power Inc	PLUG	3.18
NIO Inc ADR	NIO	3.14
SolarEdge Technologies Inc	SEDG	3.08
Ameresco Inc	AMRC	3.08
SunPower Corp	SPWR	3.07
Ormat Technologies Inc	ORA	3.04
Daqo New Energy Corp ADR	DQ	2.91
Veeco Instruments Inc	VECO	2.90
Quanta Services Inc	PWR	2.89
Universal Display Corp	OLED	2.87
Tesla Inc	TSLA	2.86
Atlantica Yield plc	AY	2.85
Livent Corp	LTHM	2.83
ESCO Technologies Inc	ESE	2.79
Advanced Energy Industries Inc	AEIS	2.78
Hexcel Corp	HXL	2.71
Gentherm Inc	THRM	2.69
Albemarle Corp	ALB	2.65
MYR Group Inc	MYRG	2.63
First Solar Inc	FSLR	2.58
Woodward Inc	WWD	2.50
Canadian Solar Inc	CSIQ	2.48
Air Products & Chemicals Inc	APD	2.45
Renewable Energy Group Inc	REGI	2.35
Sociedad Quimica y Minera	SQM	2.34
Sunrun Inc	RUN	2.31
Cree Inc	CREE	2.31
JinkoSolar Holding Co Ltd ADR	JKS	2.22
TPI Composites Inc	TPIC	1.89
Bloom Energy Corp	BE	1.04

American Superconductor Corp

AMSC

0.54

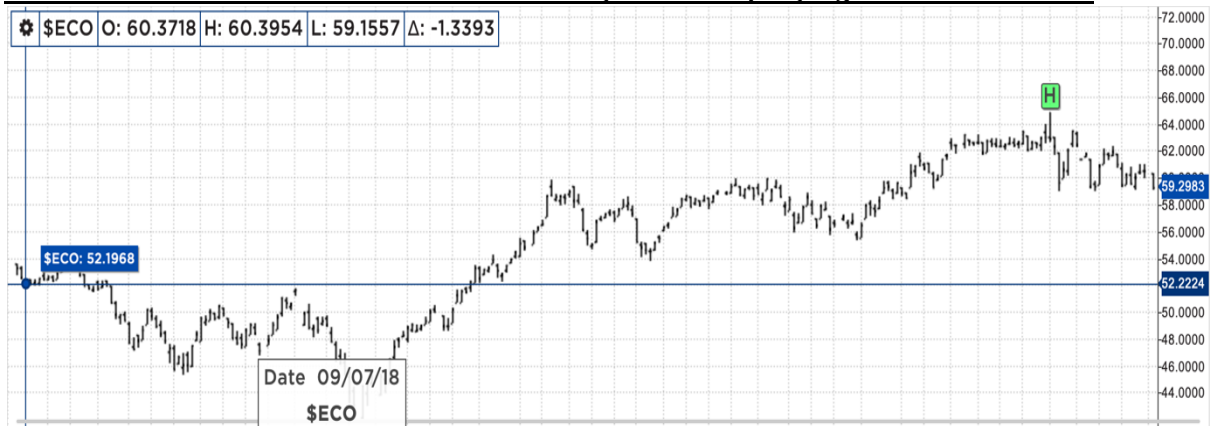
*Note above: HYGS stopped trading during Q3.

ECO via an Independent Tracker (PBW) Past 3 Years to early September 2019:



Source: bigcharts.com

ECO Index in past 1 year from early September 2018 - to early September 2019 - here one sees a nadir that occurred around a start of the year so amplifying the YTD Returns:



Source: NYSE.com

Appendix II, ECO Index for Start of the New Quarter:

INDEX (ECO) SECTOR & STOCK WEIGHTS FOR START OF Q4 2019. 40 STOCKS.

Each stock freely floats according to its share price after rebalance.

*Stocks below \$200 million in size at rebalance are *banded with a 0.50% weight.

Renewable Energy Harvesting - 20% weight (8 stocks @2.50% each)

Canadian Solar, CSIQ. Solar, vertically integrated solar manufacturer, China.

Daqo New Energy, DQ. Solar, polysilicon/wafer manufacturer; China-based.

First Solar, FSLR. Thin film solar, CdTe a low-cost alternate to polysilicon.

Hexcel, HXL. Light composites, in wind blades & spars, aerospace, vehicles.

JinkoSolar, JKS. Solar, wafers through solar modules, China-based OEM.

Ormat, ORA. Geothermal, works too in areas of recovered heat energy.

SunPower, SPWR. Solar, efficient PV panels have all-rear-contact cells.

TPI Composites, TPIC. Wind Blades; also light-weighting for transportation.

Energy Conversion - 20% sector weight (8 stocks @2.50% each)

Advanced Energy, AEIS. Power conditioning: inverters, thin film deposition.

Ballard Power, BLDP. Mid-size fuel cells; R&D, PEM FCs as in transportation.

Bloom Energy, BE. Stationary fuel cells, not-yet cleanest/renewable fuels.

Cree, CREE. Power electronics, moved into power devices including for EVs.

ESCO Technologies, ESE. Power management, shielding, controls, testing.

Gentherm, THRM. Thermoelectric, waste heat energy, battery management.

Plug Power, PLUG. Small fuel cells, for e.g. forklifts; drop in replacements.

SolarEdge Technologies, SEDG. Inverters, makes solar optimizers, inverters.

Power Delivery & Conservation - 20% sector weight (7 stocks @2.78% plus one *banded)

Ameresco, AMRC. Energy saving performance contracts, also in renewables.

**American Superconductor*, AMSC. Wind, grid conditioning; superconductors.

Itron, ITRI. Meters, utility energy monitoring, measurement & management.

MYR Group, MYRG. Transmission and Distribution, includes solar & wind farms.

Quanta Services, PWR. Infrastructure, modernizing grid & power transmission.

Universal Display, OLED. Organic light emitting diodes, efficient displays.

Veeco, VECO. Thin film equipment, for LEDs, energy efficient electronics.

Willdan, WLDN. Efficiency, distributed energy, renewables, engineering.

Greener Utilities - 15% sector weight (6 stocks @2.50% each)

Atlantica Yield, AY. Yieldco, Contracted renewables assets, also transmission.

Pattern Energy, PEGI. Wind farms, solar may be added too for GW sized PPAs.

Sunnova, NOVA. Solar provider, operating fleet for residential plus storage.

Sunrun, RUN. Residential solar systems, lease, PPA or purchase rooftop PV.

TerraForm Power, TERP. Owns and operates solar/wind, a yieldco.

Vivint Solar, VSLR. Solar, residential plus storage, long-term contracts.

Energy Storage - 20% sector weight (8 stocks @2.50% each)

Albermarle, ALB. Lithium, specialty materials in batteries; for energy storage.

Chemical & Mining Co. of Chile, SQM. Lithium, energy storage, large producer.

Enphase, ENPH. Microinverters, also energy storage systems and software.

Livent, LTHM. Lithium, and compounds for batteries in energy storage.

NIO Inc, NIO. Electric vehicles, China-based startup, other accessories.

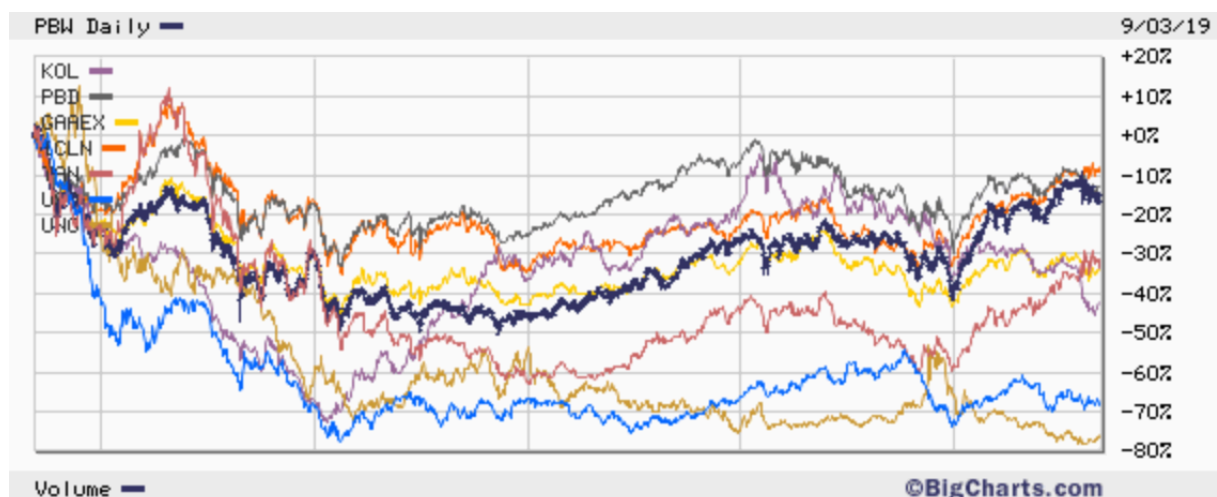
Tesla Motors, TSLA. Electric vehicles, solar; pure-play EVs & energy storage.
 Woodward, WWD. Converters, controls for wind power and energy storage.
 Workhorse, WKHS. Electric Vehicles, electric delivery vehicles, early-stage.

Cleaner Fuels - 5% sector weight (2 stocks @2.50% each)

Air Products & Chemicals, APD. Hydrogen, is a supplier of industrial gases.

Renewable Energy Group, REGI. Biodiesel, natural fats, oils, grease to biofuels.

ECO tracker in bold, and Global NEX tracker - plus themes in clean energy, & fossil fuels
Past 5 years to early Sep. 2019 for some 'tough times' and declines across energy:



Source: bigcharts.com

As seen by **ECO** (bold) and by Global NEX both via trackers, plus many other themes to early Sept. 2019, last 5 years were rough for all: clean, alternative energy & fossil fuel stories all mainly down. For example despite **ECO** falling hard (then rising 1H 2019) it's still down here some -15%. Even down the clean energy story is well above oil & natural gas trackers off some -65%, & -75%. Meanwhile, a coal tracker rose 2016/2017 but is still beneath ECO/NEX. Clean energy is off, yet all the fossils coal, oil & gas are down much more.

To repeat clean and new energy ECO/NEX are both notably still down in this timeframe. The past 5 years were arguably tough then across energy broadly, including fossil fuels all. But Not all themes, if one just steps outside energy-only stories - suffered ...

Much to contrary: absent here as being not only-in-energy, so with broad pictures are major broad market Indexes like S&P500, NASDAQ or MSCI - which did much, much 'better' last 5 years than narrow passive energy themes. In this period above those moved very differently and have done 'far better' than energy. By contrast ECO/NEX instead passively track their own volatile themes of *clean* & *global clean energy* respectively, risky themes compared to broad markets - that surely can/do go deeply down - or perhaps as in 2019, also up.

Appendix III: WilderHill New Energy Global Innovation (NEX) descending weights late-Q3 via independent tracker (PBD) 9/13/19 or ~2 weeks before Rebalance for Q4 2019. 106 stocks:

Name	Weight
PNE AG	1.32
Ballard Power Systems Inc	1.27
Xinyi Solar Holdings Ltd	1.26
OSRAM Licht AG	1.24
Enphase Energy Inc	1.20
Huaneng Renewables Corp Ltd	1.17
Mercury NZ Ltd	1.16
NEL ASA	1.16
NIO Inc ADR	1.15
SolarEdge Technologies Inc	1.15
Itron Inc	1.14
VERBIO Vereinigte BioEnergie AG	1.14
TerraForm Power Inc	1.12
SunPower Corp	1.12
Pattern Energy Group Inc	1.12
Meidensha Corp	1.11
Orsted A/S	1.10
Encavis AG	1.10
Ormat Technologies Inc	1.10
Scatec Solar ASA	1.10
Lextar Electronics Corp	1.09
Xinjiang Goldwind Science & Technology Co Ltd	1.08
Contact Energy Ltd	1.08
Daqo New Energy Corp ADR	1.07
Willdan Group Inc	1.07
Motech Industries Inc	1.06
Plug Power Inc	1.05
Tesla Inc	1.05
Innergex Renewable Energy Inc	1.05
Neoen SA	1.04
Boralex Inc	1.04
EDP Renovaveis SA	1.04
Clearway Energy Inc	1.03
Gurit Holding AG	1.03
Verbund AG	1.02
Wasion Holdings Ltd	1.02
RENOVA Inc	1.02

Landis+Gyr Group AG	1.02
Ameresco Inc	1.01
Meridian Energy Ltd	1.00
Tanaka Chemical Corp	0.99
Atlantica Yield plc	0.98
Albioma SA	0.98
Credit Suisse Real Estate Fund Green Property	0.98
West Holdings Corp	0.97
Vivint Solar Inc	0.97
Hannon Armstrong Sustainable Infra. Capital Inc	0.97
Acuity Brands Inc	0.96
SPCG PCL	0.96
BCPG PCL	0.96
Gigasolar Materials Corp	0.95
Kandi Technologies Group Inc	0.95
Everlight Electronics Co Ltd	0.95
Universal Display Corp	0.94
Canvest Environmental Protection Group Co Ltd	0.94
Veeco Instruments Inc	0.94
Falck Renewables SpA	0.94
First Solar Inc	0.94
Drax Group PLC	0.94
Renewables Infrastructure Group Ltd	0.93
China High Speed Transmission Equipment Group Ltd	0.93
Samsung SDI Co Ltd	0.93
Signify NV	0.92
SMA Solar Technology AG	0.92
Greencoat UK Wind PLC/Funds	0.92
CropEnergies AG	0.91
Canadian Solar Inc	0.91
Epistar Corp	0.91
GCP Infrastructure Investments Ltd	0.91
Northland Power Inc	0.90
Sino-American Silicon Products Inc	0.90
Takuma Co Ltd	0.90
eRex Co Ltd	0.90
GS Yuasa Corp	0.89
TransAlta Renewables Inc	0.89
Novozymes A/S	0.88
Renewable Energy Group Inc	0.88

Super Energy Corp PCL	0.88
China Longyuan Power Group Corp Ltd	0.87
Vestas Wind Systems A/S	0.86
Ricardo PLC	0.86
EF-ON INC	0.85
Cree Inc	0.84
Caverion Oyj	0.84
Sociedad Quimica y Minera de Chile SA ADR	0.84
Kingspan Group PLC	0.83
Nibe Industrier AB	0.83
BYD Co Ltd	0.82
United Renewable Energy Co Ltd/Taiwan	0.82
JinkoSolar Holding Co Ltd ADR	0.81
Siemens Gamesa Renewable Energy SA	0.81
Sunrun Inc	0.81
GCL-Poly Energy Holdings Ltd	0.80
REC Silicon ASA	0.75
Seoul Semiconductor Co Ltd	0.75
Nordex SE	0.72
Unison Co Ltd/South Korea	0.71
Ecopro Co Ltd	0.69
Meyer Burger Technology AG	0.69
CS Wind Corp	0.69
TPI Composites Inc	0.68
Audax Renovables SA	0.67
Voltabox AG	0.58
W-Scope Corp	0.42
Bloom Energy Corp	0.37
FDG Electric Vehicles Ltd	0.32

*NEX Index Methodology Change: After 2019 Consultation / Announcement all constituents have gone from past Large/Small assignments - to straighter-equal-weightings starting Q3 2019 - additionally, the NEX Sector Weightings are assigned Q3 2019 onwards per the # of Constituents placed in each NEX Sector (rather than external Survey); those changes were effective Q3 2019.

Appendix IV:
WilderHill New Energy Global Innovation Index (NEX) - start of Q4 2019. 100 Stocks.

(subject to revision, see http://www.nexindex.com/Constituents_And_Weightings.php)

Also Index Composition, <https://www.solactive.com/?s=wilderhill&indexmembers=US96811Y1029>

<u>Name</u>	<u>Description</u>	<u>Sector</u>	<u>Cur</u>	<u>Listing</u>	<u>Wght %</u>
Acuity Brands	LEDs, OLEDs, controls for indoor & outdoor lighting.	EEF	USD	US	1.00
Albioma SA	Biomass, sugarcane, hybrid combustion, cogen.	RBB	EUR	FRANCE	1.00
Ameresco	Energy savings, performance contracts, renewables.	EEF	USD	US	1.00
Atlantica Yield plc	Yieldco, Contracted renewables, also transmission.	RSR	USD	US	1.00
Audax Renovables	Wind power, in Europe and the Americas.	RWD	EUR	SPAIN	1.00
Ballard Power	Fuel cells; R&D, used in transportation and more.	ECV	CAD	CANADA	1.00
BCPG PCL	Solar and other renewable energy.	RSR	THB	THAILAND	1.00
Bloom Energy	Stationary fuel cells, distributed but non-renewable.	ECV	USD	US	1.00
Boralex	Renewables generation, operates wind, hydro, solar.	RWD	CAD	CANADA	1.00
BYD Co.	Batteries, potential use in EVs, rail, solar, China.	ENS	HKD	HONG KONG	1.00
Canadian Solar	Solar, vertically integrated solar manufacturer, China.	RSR	USD	US	1.00
Canvest Envtl.	Waste to Energy, China-focused.	RBB	HKD	HONG KONG	1.00
Caverion OYJ	Energy efficiency, buildings, infrastructure, Europe.	EEF	EUR	FINLAND	1.00
China Speed Trans.	Wind power, turbine gear boxes & transmissions.	RWD	HKD	HONG KONG	1.00
Clearway Energy	Contracted power generation, thermal, renewables.	RWD	USD	US	1.00
Contact Energy	Electric Utility, offers power from geothermal, hydro.	ROH	NZD	NEW ZEA	1.00
Cree Inc.	LED manufacturer power-saving, efficient lighting.	EEF	USD	US	1.00
CropEnergies AG	Bioethanol, from cereals and sugarbeet, Germany.	RBB	EUR	GERMANY	1.00
Credit Suisse R. Grn.	Sustainability in buildings, real estate.	EEF	CHF	SWITZ	1.00
CS Wind	Wind power, both onshore, also offshore.	RWD	KRW	S. KOREA	1.00
Daqo New Energy	Solar, high-purity polysilicon for solar wafers, China.	RSR	USD	US	1.00
Drax Group PLC	Electric power company, biomass wood thermal, U.K.	RBB	GBP	BRITAIN	1.00
EcoPro	Battery materials, Pollution Control, S. Korea.	ENS	KRW	S. KOREA	1.00
EDP Renovaveis SA	Wind power, among largest in world, Iberia.	RWD	EUR	PORTUGAL	1.00
EF On Inc.	Energy services, conserve., woody biomass, Japan.	RBB	JPY	JAPAN	1.00
Encavis AG	Solar, large solar park operator, also wind, Germany.	RSR	EUR	GERMANY	1.00
Enphase	Inverters, micro-products for solar panels, storage.	RSR	USD	US	1.00
Epistar	LEDs, large LED manufacturer in Taiwan.	EEF	TWD	TAIWAN	1.00
eRex Co. ltd.	Power gen, business, residential, biomass, Japan.	RBB	JPY	JAPAN	1.00
Everlight Electronics	LEDs, large manufacturer in optoelectronics, Taiwan.	EEF	TWD	TAIWAN	1.00
Falck Renewables	Renewable wind, biomass, WtE, solar, Europe.	RWD	EUR	ITALY	1.00
First Solar	Thin film solar, CdTe as alternate to polysilicon.	RSR	USD	US	1.00
GCP Infrastructure	Trust invests in renewables, based in Jersey U.K.	RSR	GBP	BRITAIN	1.00
Gigasolar Materials	Solar, conductive pastes in PV panel manufacturing.	RSR	TWD	TAIWAN	1.00
Greencoat UK Wind	Infrastructure fund, invested in U.K. wind assets.	RWD	GBP	BRITAIN	1.00

GS Yuasa	Battery technologies, also Lithium for EVs, Japan.	ENS	JPY	JAPAN	1.00
Gurit Holding AG	Composite Materials in wind, lightens cars, planes.	RWD	CHF	SWITZ	1.00
Hannon Armstrong	Energy efficiency, capital & finance for infrastructure.	EEF	USD	US	1.00
Huaneng Renewab	Large power plants, R&D into efficiency, China.	RWD	HKD	HONG KONG	1.00
Innergex Renewable	Renewable power, run-of-river hydro, wind, solar.	ROH	CAD	CANADA	1.00
Itron	Meters, Utility energy, measuring, management.	EEF	USD	US	1.00
JinkoSolar	Solar, wafers to solar modules, China-based OEM.	RSR	USD	US	1.00
Kandi Technologies	Electric Vehicles, focus on battery electric vehicles.	EEF	USD	US	1.00
Kingspan Group plc	Efficient Buildings, insulation, conservation, Ireland.	EEF	EUR	IRELAND	1.00
Landis+Gyr Grp AG	Advanced meters, modernizing grid, Switzerland.	EEF	CHF	SWITZ.	1.00
Lextar Elect. Corp	LEDs and efficient displays and lighting.	EEF	TWD	TAIWAN	1.00
Meidensha Corp	Energy management, power gen & transmission.	EEF	JPY	JAPAN	1.00
Mercury NZ	Clean power, 100% renewable hydro, geothermal.	ROH	NZD	N ZEALAND	1.00
Meridian Energy	Hyrdoelectric power stations, wind, New Zealand.	ROH	NZD	N ZEALAND	1.00
Meyer Burger Tech	Solar, manufacturing equip. Switzerland, worldwide.	RSR	CHF	SWITZ	1.00
Motech Industries	Solar, producer of cells, modules, Taiwan.	RSR	TWD	TAIWAN	1.00
Nel ASA	Hydrogen, envisions fuel cells, renewable, Norway.	ECV	NOK	NORWAY	1.00
Neoen SA	Renewable energy mainly solar, some wind.	RSR	EUR	FRANCE	1.00
Nibe Industrier AB	Heating & cooling, sustainable technologies, Sweden.	EEF	SEK	SWEDEN	1.00
Nio	EVs, design, manufacture, and sale including SUVs	EEF	USD	US	1.00
Nordex SE	Wind turbines, based in Germany and worldwide.	RWD	EUR	GERMANY	1.00
Northland Power	Wind, solar, nat. gas, biomass; power prod. Canada.	RWD	CAD	CANADA	1.00
Novozymes A/S	Biofuels, enzymes used in partnerships, Denmark.	RBB	DKK	DENMARK	1.00
Ormat	Geothermal, works too in recovered heat energy.	ROH	USD	US	1.00
Orsted A/S	Sustainable wind, also biomass, thermal, Denmark.	RWD	DKK	DENMARK	1.00
OSRAM Licht AG	LEDs, Lighting manufacturer, semis, Germany.	EEF	EUR	GERMANY	1.00
Pattern Energy Group	Wind farms, solar added for GW sized PPAs.	RWD	USD	US	1.00
Plug Power	Small fuel cells, e.g. in forklifts; drop in replacements.	ECV	USD	US	1.00
PNE AG	Wind, both onshore and offshore globally.	RWD	EUR	GERMANY	1.00
Renewable Ene Grp	Biodiesel, natural fats, oils, grease to biofuels.	RBB	USD	US	1.00
Renewables Infra	Wind Farm & Solar Park revenues assets, U.K.	RWD	GBP	BRITAIN	1.00
Renova	Wind, Solar, Biomass, power generation in Asia.	RWD	JPY	JAPAN	1.00
Ricardo plc	Global Engineering, energy, envt, transportation.	EEF	GBP	BRITAIN	1.00
Samsung SDI	Batteries, innovative energy storage, EVs, S. Korea.	ENS	KRW	S. KOREA	1.00
Scatec Solar ASA	Solar power parks worldwide.	RSR	NOK	NORWAY	1.00
Seoul Semiconductor	Lighting, automotive, LEDs, South Korea	EEF	KRW	S. KOREA	1.00
Siemens Gamesa	Wind, onshore & offshore, turbines gears, Spain	RWD	EUR	SPAIN	1.00
Signify NV	Lighting, systems increasing efficiency, Netherlands.	EEF	EUR	NETHLND.	1.00
Sino-American Silicon	Solar, semicons silicon wafer materials, Taiwan.	RSR	TWD	TAIWAN	1.00
SMA Solar Tech	Inverters for solar, industrial scale, storage, Germany.	RSR	EUR	GERMANY	1.00

Sociedad Quim Chile	Lithium, a key element in advanced batteries, Chile	ENS	USD	US	1.00
SolarEdge	Inverters, panel solar optimizers, micro-inverters.	RSR	USD	US	1.00
Sunnova	Residential solar and energy storage installation.	RSR	USD	US	1.00
SunPower	Solar, efficient PV panels with rear-contact cells.	RSR	USD	US	1.00
Sunrun	Residential solar, leasing, PPA or purchase roof PV.	RSR	USD	US	1.00
Takuma	Thermal Plants, biomass, corn, wood wastes.	RBB	JPY	JAPAN	1.00
Tanaka Chemical	Battery technologies, positive electrode materials.	ENS	JPY	JAPAN	1.00
TerraForm Power	Owns, runs solar/wind, in developed nations, yieldco.	RSR	USD	US	1.00
Tesla	Electric vehicles, solar; in EVs & energy storage.	ENS	USD	US	1.00
Tilt Renewables	Wind Farms, Australia and New Zealand, some solar.	RWD	NZD	N. ZEALAND	1.00
TPI Composites	Wind Blades; also light-weighting for transportation.	RWD	USD	US	1.00
TransAlta Renew	Renewables, operating wind power, some hydro.	RWD	CAD	CANADA	1.00
United Renewable En	Solar, aiming to be vertically-integrated, Taiwan.	RSR	TWD	TAIWAN	1.00
Universal Display	Organic light emitting diodes, efficient displays.	EEF	USD	US	1.00
Veeco instruments	Thin film equipment, for LEDs, efficient electronics.	EEF	USD	US	1.00
Verbio Ver. BioEn.	Biofuels, manufacturer supplier to Germany, Europe.	RBB	EUR	GERMANY	1.00
Verbund AG	Electricity supplier, hydro, a large provider for Austria.	ROH	EUR	AUSTRIA	1.00
Vestas Wind A/S	Wind, wind turbine man & services, Denmark.	RWD	DKK	DENMARK	1.00
Vivint Solar	Solar, one-stop installer direct to homes sales model.	RSR	USD	US	1.00
W-Scope	Lithium-ion batteries, separator membranes	ENS	JPY	JAPAN	1.00
West Holdings	Solar, Japan-focused residential and commercial PV.	RSR	JPY	JAPAN	1.00
Willdan Group	Energy efficiency in infrastructure, engineering.	EEF	USD	US	1.00
Xinjiang Goldwind	Wind, large turbine manufacturer, China.	RWD	HKD	HONG KONG	1.00
Xinyi Energy Holdings	Solar Farms, spin-off from Xinyi solar glass, China.	RSR	HKD	HONG KONG	1.00
Xinyi Solar Holdings	Solar, ultra-clear solar glass products, China.	RSR	HKD	HONG KONG	1.00

Changes to NEX Index for Start of Q4 2019:

3 NEX ADDITIONS for start of Q4 were:

Tilt Renewables (New Zealand); Sunnova (U.S.); Xinyi Energy Holdings (Hong Kong).

9 NEX DELETIONS for start of Q4 were:

FDG Electric Vehicles (Hong Kong/China); GCL Poly (Hong Kong); SPCG (Thailand); Super Energy (Thailand); Unison (Korea); Wasion (Hong Kong); China Longyuan Power (Hong Kong); Voltabox (Germany); REC Silicon (Norway).

Appendix V: NEX Sector Weights for start of New Quarter

100 Stocks for Start of Q4 2019.

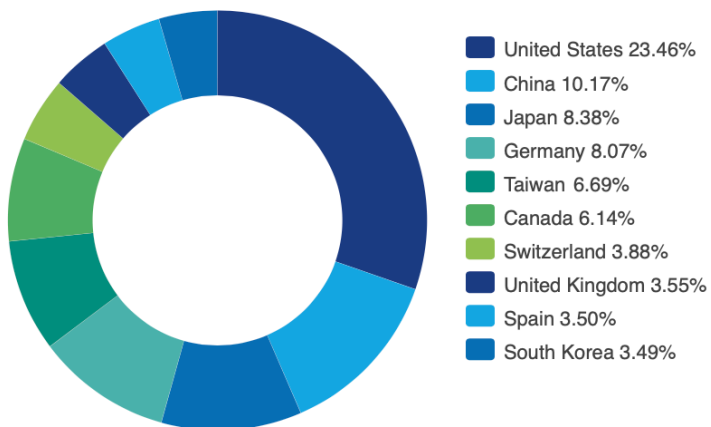
NEX SECTOR WEIGHTS for Q4 2019:

	<u>SECTOR</u>	<u>QUANTITY</u>	<u>% Sector Weight</u>
Energy Conversion	ECV	4	4.00%
Energy Efficiency	EEF	23	23.00%
Energy Storage	ENS	8	8.00%
Renewables - Biofuels & Biomass	RBB	10	10.00%
Renewables - Other	ROH	6	6.00%
Renewable - Solar	RSR	26	26.00%
Renewable - Wind	RWD	23	23.00%
		<hr/>	
		100	100.00%

Country Allocation roughly in Independent separate NEX tracker as seen late-Q3 on 9/26/2019:

Top Country Allocation

as of 09/26/2019



Appendix VI: NEX Historical Sector Weight Information

Sector Weights at the Start Of Each Quarter*	ECV Energy Conversion	EEF Energy Efficiency	ENS Energy Storage	RBB Renewables - Biofuels & Biomass	ROH Renewables - Other	RSR Renewable - Solar	RWD Renewable - Wind
Q3 2019	3.77%	22.64%	9.43%	9.43%	5.66%	26.41%	22.64%
Q2 2019	1.40%	29.72%	9.11%	6.13%	4.41%	21.75%	27.49%
Q1 2019	1.42%	30.07%	9.36%	8.48%	4.49%	20.72%	25.46%
Q4 2018	1.05%	30.25%	9.00%	7.94%	3.63%	21.78%	26.34%
Q3 2018	0.79%	29.62%	8.48%	6.60%	3.71%	23.67%	27.12%
Q2 2018	0.80%	30.50%	8.80%	7.90%	3.90%	22.50%	25.50%
Q1 2018	1.00%	30.67%	7.64%	7.74%	3.92%	23.37%	25.66%
Q4 2017	1.14%	29.36%	6.75%	8.21%	4.68%	20.58%	29.28%
Q3 2017	0.76%	30.88%	5.91%	9.11%	4.55%	18.80%	29.98%
Q2 2017	0.67%	33.68%	6.50%	8.75%	4.92%	18.73%	26.75%
Q1 2017	1.00%	31.83%	5.64%	9.03%	5.43%	17.92%	29.14%
Q4 2016	0.71%	32.00%	3.58%	8.48%	5.20%	18.84%	31.19%
Q3 2016	1.12%	31.00%	4.54%	7.76%	5.87%	21.09%	28.61%
Q2 2016	1.02%	32.18%	3.69%	7.15%	5.18%	21.60%	29.18%
Q1 2016	1.01%	34.83%	3.61%	9.38%	4.26%	20.14%	26.77%
Q4 2015	0.95%	33.54%	3.09%	9.19%	5.19%	20.40%	27.65%
Q3 2015	0.95%	32.97%	3.18%	8.05%	4.52%	24.65%	25.67%
Q2 2015	1.22%	33.68%	2.26%	9.55%	6.90%	24.88%	21.50%
Q1 2015	1.68%	33.88%	2.14%	11.54%	6.84%	24.86%	19.06%
Q4 2014	1.42%	33.67%	2.26%	12.31%	8.45%	24.67%	17.22%
Q3 2014	1.42%	33.42%	2.30%	12.44%	9.09%	23.78%	17.56%
Q2 2014	1.11%	34.20%	2.00%	12.16%	9.86%	23.16%	17.52%
Q1 2014	1.17%	33.13%	2.34%	12.17%	10.33%	23.95%	16.91%
Q4 2013	1.28%	35.26%	2.28%	14.02%	12.47%	19.58%	15.10%
Q3 2013	1.25%	35.04%	2.35%	14.61%	13.06%	19.10%	14.58%
Q2 2013	1.31%	33.43%	2.63%	15.42%	14.05%	17.54%	15.62%
Q1 2013	1.31%	33.43%	2.63%	15.42%	14.05%	15.90%	14.14%
Q4 2012	1.50%	33.93%	2.97%	14.50%	14.50%	19.59%	13.04%
Q3 2012	2.32%	28.30%	6.70%	14.22%	8.35%	21.17%	19.00%
Q2 2012	1.34%	28.14%	4.16%	14.61%	13.98%	22.00%	15.96%
Q1 2012	1.60%	28.01%	4.01%	13.85%	14.70%	20.83%	17.00%
Q4 2011	1.14%	25.06%	4.12%	12.13%	11.63%	26.48%	19.45%
Q3 2011	1.28%	22.72%	6.24%	10.17%	10.49%	24.60%	24.32%
Q2 2011	1.50%	23.34%	8.06%	10.69%	9.53%	25.76%	21.04%
Q1 2011	1.50%	26.95%	6.99%	10.50%	9.46%	24.59%	20.00%
Q4 2010	1.79%	24.32%	8.80%	11.21%	6.02%	24.16%	23.71%
Q3 2010	1.97%	20.31%	8.86%	11.70%	6.59%	24.42%	26.16%
Q2 2010	1.90%	17.29%	8.53%	12.36%	6.58%	24.29%	29.05%
Q1 2010	2.04%	16.93%	8.65%	12.25%	6.73%	25.03%	28.36%

Q4 2009	2.25%	15.20%	7.10% ¹	11.26%	7.10%	27.51%	29.58%
Q3 2009	2.59%	13.77%	5.38%	10.76%	6.81%	29.24%	31.45%
Q2 2009	2.42%	12.89%	4.79%	12.21%	6.49%	30.57%	30.63%
Q1 2009	2.77%	15.14%	5.29%	14.19%	8.25%	25.70%	28.68%
Q4 2008	2.25% ²	23.93%	3.57%	12.09%	6.48%	26.63%	25.05%
Q3 2008	3.31%	20.03%	3.33%	13.14%	6.54%	27.27%	26.39%
Q2 2008	3.81%	17.85%	2.81%	14.32%	6.47%	27.03%	27.71%
Q1 2008	3.93%	13.56%	2.94%	14.26%	6.99%	30.00%	28.34%

*To early 2019, NEX Sectors and Weights were based partly on dividing companies into large or small, and an external survey of companies deemed active in new energy: results adjusted for factors including exposure to new energy and some exchange restrictions. Subsequently, components generally were equally weighted, respective sector weights in accordance with number of Index components assigned to each NEX sector, components and sectors adjusted if necessary as determined by Index Provider and reviewed each quarter.

¹ PWS (Power Storage) changed its name to ENS (Energy Storage) at the end of the 4th Quarter of 2009.

² HFC (Hydrogen & Fuel Cells) changed its name to ECV (Energy Conversion) at the end of the 4th Quarter of 2008.

³ HF (Hydrogen And Fuel Cells) became HFC (Hydrogen & Fuel Cells) after 2007 and then changed its name to ECV (Energy Conversion) at the end of 4th Quarter of 2008.

⁴ DS (Demand Side Energy Savings) and GE (Generation Efficiency And Smart Distribution) were combined into EEF (Energy Efficiency) after 2007.

After latter 2019, the NEX Index is Calculated in U.S. Dollars only,
<https://nex-index.com/pdf/NEX%20USD%20Announcement.March%202019.pdf>

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