



Q4 2016 Quarterly Report: WilderHill Clean Energy Index[®], December 31, 2016

For 4th Quarter 2016 the Clean Energy Index[®] (ECO) began near 40 and ended near 38 for a loss of about 5%; for the entire year from starting 2016 near 49, ECO was down some -22%. Or, look back 3 years since start of 2014: here the clean energy theme & thus ECO Index[®] at first gained in Q1 2014, then fell and didn't re-test those highs. Declines were broken by an upturn late 2015 then clean energy fell Q1 to Q2 2016, and went mostly sideways Q3/Q4 for a clean energy theme that has dropped hard at times while carrying much risk. Yet it should be noted fossil fuels have fallen harder over the last 5 years than ECO: oil, coal & natural gas all dropped even farther than clean energy over say, a past five years period.

Quite different however has been the Progressive Energy Index[®] (WHPRO) which excludes solar, wind & green renewables: that is a much different theme instead for reducing the CO2 & pollution from - and greater efficiencies in major energy today. WHPRO can move unlike a greener ECO theme that 'can and does at times drop like a rock'; it is different too from fossil fuel indexes. Observe then Progressive WHPRO moved up strongly in early 2016 and stayed positive all year touching near +40%. This unique Progressive Energy basket did much 'better' too over 2016 than the Dow, Nasdaq, or S&P major averages.

For the WilderHill[®] New Energy Global Innovation Index (NEX) theme capturing new energy *worldwide* mostly outside the U.S., it 'underperformed' ECO and especially WHPRO Q4; yet over 2016, it bested ECO (while WHPRO is far at top as noted). Yet over say last 5 years, here NEX did 'best' of WilderHill (WH) Indexes, well up +25%, Progressive up some +11%. Traditional 'dirty' energy by contrast, ended much farther down/negative last 5 years - despite some gains over 2016 and an election uptick in fossil fuels seen in charts below.

Given the Presidential election, all 3 WH themes perhaps merit a closer look since then too: here clean energy ECO saw modest gains, with global NEX flatter in weeks after election. By contrast the Progressive theme that rose strongly up by some +20% YTD to early November - afterwards rose much farther still, touching up rather near +40% by late 2016.

In sum ECO declined most of 2016; the post-election did see a small rise, with NEX a bit more level. Progressive saw strong upturns in the year, even more after election; its theme of better use of fossil fuels and greater efficiency while reducing CO2/pollution has perhaps gotten attention including lately. Finally, unlike WHPRO's upturns Q4 & 2016, here is ECO in Q4 showing nearly all red - there's a very modest yet perhaps slightly surprising rise in the clean energy theme in latter half since the Presidential election:



Source: bigcharts.com

For a bigger picture capturing in part too an energy crash over 2008-2012, step-back to see roughly ~10 years, from about 2006 to October 2016 in a Chart below. Included here are fossil fuels and dramatic is the crash in Natural Gas (green) sharply down by near ~90%! Thus we see starting from the very-lowest at bottom a **Natural Gas tracker, green**; just above it a tracker for **Solar, blue** also far down. Next 3rd from bottom is a tracker for **Oil, red**, once up but fell hard. Thus natural gas, solar, & oil are all down last ~10 years.

Next above those is an **active fund, burnt red** for alternative energy (and shows it's pretty hard for an active-fund to regularly beat an Index) - it is in a clumping among 2 other differing themes here in clean vs. traditional energy; all down too, near -70%.

So also nearly-tied here is **ECO Index via independent tracker, bold**; it along with 2 others, are doing 'better' (down less) than **Natural Gas, Oil, and Solar**. Noticeable too among these three here is the third, Coal, had previously trailed; yet its tracker **blue**, rose strongly in 2016 to just above ECO. And because this ~10 year Chart goes only to October's start, it misses some gains for coal in October (but then it declined November/December).

Higher above those 6 after a gap is the global **NEX via tracker, brown**. Lastly well above it, and farthest at 'top' is **WilderHill Progressive (WHPRO via PUW, orange)** for reducing CO2 & improving efficiency in major energy. It ends near nil, only theme nearly 'up' if starting so early - noting however these other trackers do not begin so far back as ~10 years ago:

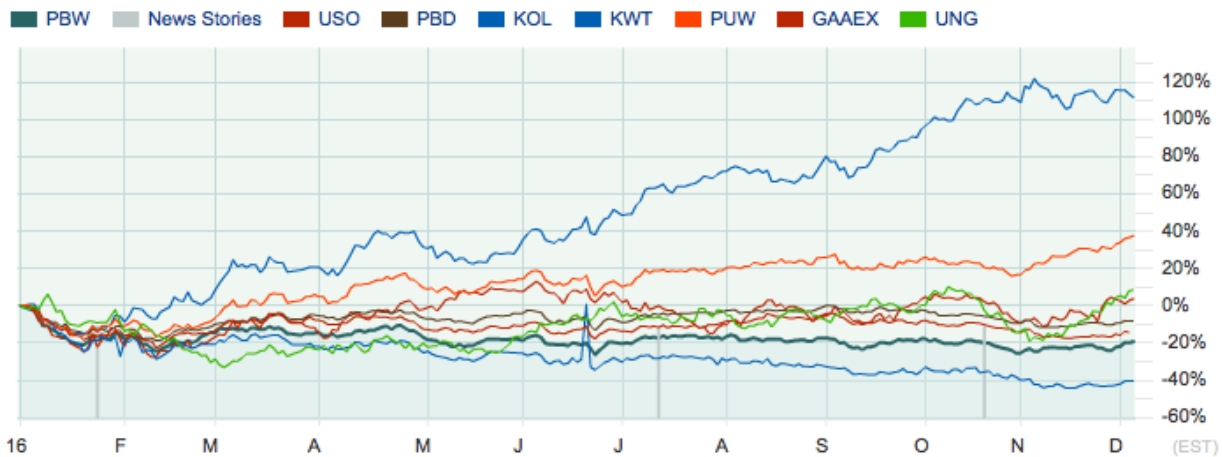


Source: bigcharts.com

Next, consider these same independent trackers first 11 months of 2016 to December 8th - or to 1-month past election; this shows a much different picture YTD to early December. Two leaders both firmly positive, are a very different **coal** theme (via tracker KOL) that's up remarkably by over +100% YTD(!) in **blue** - and a Progressive WHPRO theme **in orange** (via tracker PUW) up here near +40%: both (especially coal) are well above all else here.

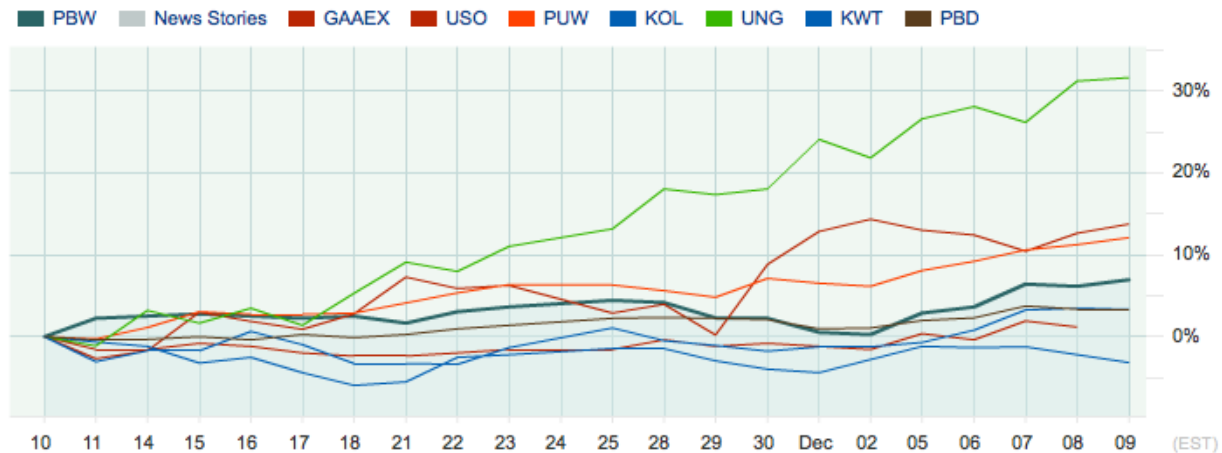
Seen below are the rest are near nil or negative YTD, going downwards from (down least) **natural gas near nil**, then **oil, NEX tracker, active alternative energy, and ECO Index** down some -20%, while hard times continue for a solar-theme in **blue** that once again plummets. Here they are next as noted for 2016 to December 8th for one-month post-election:

2016 YTD up to December 8th:



Source: bigcharts.com

And yet ... given this November election it could also be interesting to see these same themes 4 weeks after Nov. 9th, that is since election of a new leader with a different vision. Here are these same themes in 4 weeks to December 9th - for possible themes that maybe fared just a bit well at first in that time of choosing a new President & Congress:



Source: bigcharts.com

Look above to this 1-month period, and Natural Gas **green** is a clear winner up over +30%. Up too is Oil, **burnt red**, and close to it is Progressive WHPRO **in orange** both up near +15%. That natural gas, or oil, are up post-election is maybe of little surprise. Yet a strong showing for WHPRO is perhaps a bit notable, as is the fact clean energy ECO was even up at all post-election. Seeing coal, **blue** sideways to slightly down here is perhaps a consequence of it having gone up dramatically 2016 already; it's said 'trees do not grow to the sky'. Solar, **brown** conversely having already fallen so far & hard over the year, moves relatively little in this one month but that doesn't change its big fall seen over all 2016.

Let's have a look too at what's done best within ECO Index, & within Progressive WHPRO last 52 weeks to December 9th - again 1-month post-election. This gives a chance to mull too over what maybe was perhaps rewarded in 2016 (prior to a new Administration & Congress - and such unknowable delta ahead will be of interest). But first let's look back:

Here then looking back are greatest Upturns the last 52-weeks in Clean Energy Index (ECO) - in other words the individual constituents rising most from 52-week lows, to Dec. 9th:

ITRI **+121.40%**
SQM **+121.40%**
AEIS **+120.62%**
PWR **+112.16%**
ENOC **+110.62%**
SKYS **+103.57%**
GLBL **+103.13%**

Note what this above list of only the 'top-performers' *doesn't* contain for past-52 weeks; there's an absence of the makers of solar panels, wind turbines, geothermal equipment etc. Instead there's say makers of power electronics, metering devices, grid innovation, suppliers of lithium for batteries, creators of renewable green energy parks downstream where power purchase agreements may be negotiated & electricity supplied. But upstream manufacturers in producing renewable energy aren't in top performers, reflecting perhaps a margin squeezing & 'cut-throat' competition in recent times for such businesses upstream, in an era when renewable energy costs and pricing are plunging.

As pointed out, the Progressive Energy Index WHPRO 'outshined' most of the big & other Indexes this period, even active Funds in 2016 so it's worth a moment to have a look at its top performers too past 52-week period to one-month after election, December 9th.

These top performers are generally 2x or more over the winners in a clean energy theme - being up some +250% to 300% plus - vs. some +125% up for constituents in ECO. Of course any gains around +250% or +300% from 52-week lows probably merit some attention:

CHK **+378.67%**
MDR **+260.45%**
BGC **+220.74%**
MTZ **+220.74%**
CZZ **+215.79%**
GTLS **+199.62%**

Looking at these 'top' constituents within Progressive Energy Index WHPRO we see names active in natural gas, engineering to reduce pollutants and CO2 from oil & gas and improve efficiencies, power grid innovations, improving dominant energy infrastructure, biofuels, and transport/storage of natural gas. These are all firmly within the WilderHill Progressive energy theme and hence distinct from ECO's greener, no-carbon clean energy; at times the former theme has been perhaps 'of some interest' - and at other times, the latter.

It will be interesting to see what year 2017 ahead brings us all as the new Administration sets out its own vision for energy and takes a fresh direction. One surprising item of small note is Clean Energy under President Bush (43) had broadly speaking gained, at least as seen by main clean energy/solar equities/indexes - while broadly speaking they'd declined (counter-intuitively) under Obama, at least as measured by equities/indexes. Lastly here are all individual components in ECO & WHPRO for 52 weeks ranges to Dec. 18, 2016:

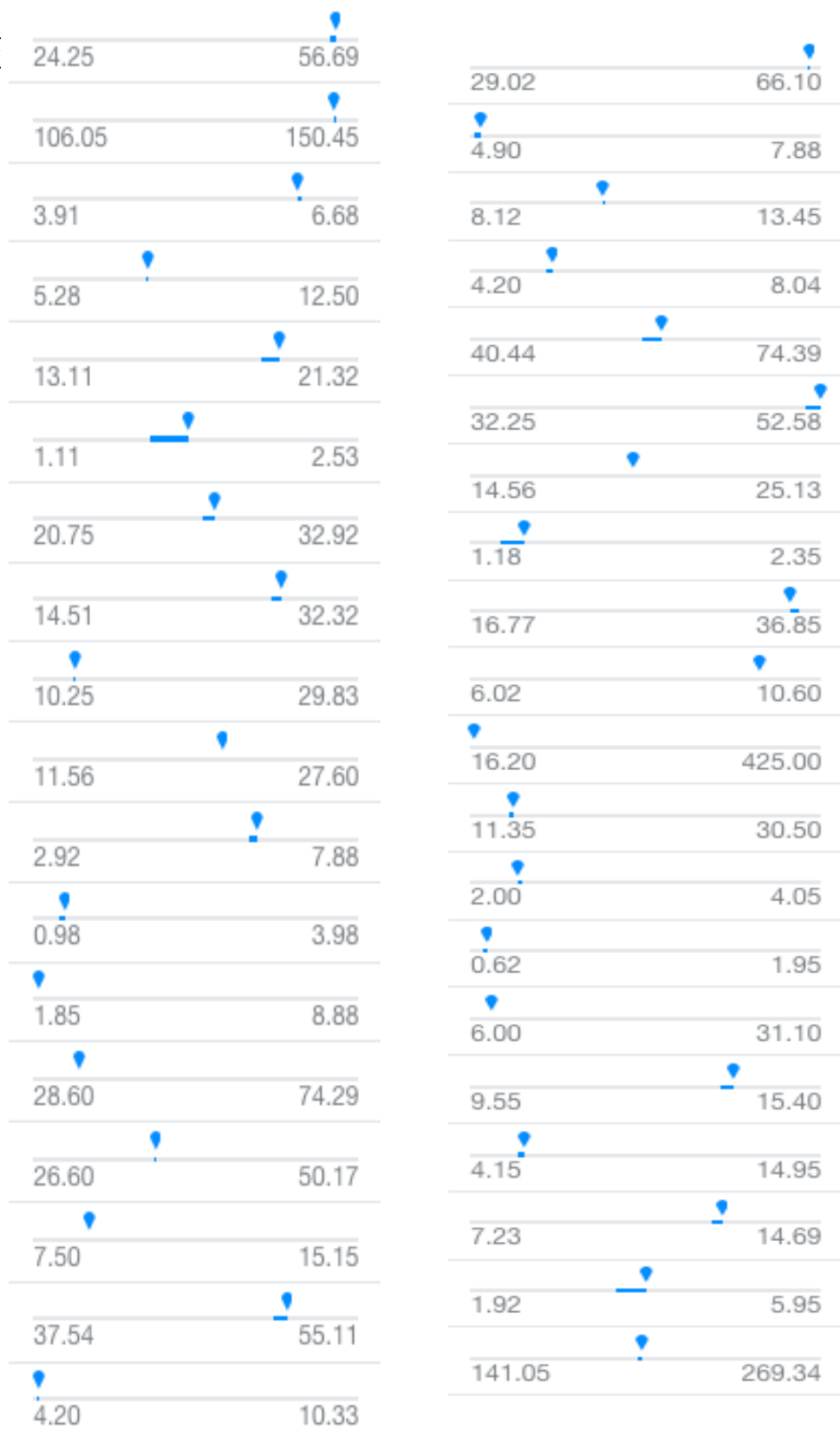
ECO Constituents; past 52 weeks
as of Dec. 18, 2016 for past year
& on this date, blue for each:

Column 1:

- AEIS
- APD
- AMRC
- AMSC
- ABY
- BLDP
- CREE
- SQM
- CSIQ
- DQ
- ENOC
- ENPH
- FCEL
- FSLR
- THRM
- HQCL
- HXL
- HYGS
- [ITC*]

Column 2:

- ITRI
- JASO
- LYTS
- MXWL
- OLED
- ORA
- PEGI
- PLUG
- PWR
- REGI
- [SCTY*]
- SEDG
- SKYS
- SOL
- SPWR
- SSNI
- RUN
- TERP
- GLBL
- TSLA



*Note: ITC and SCTY ceased trading during Q4.

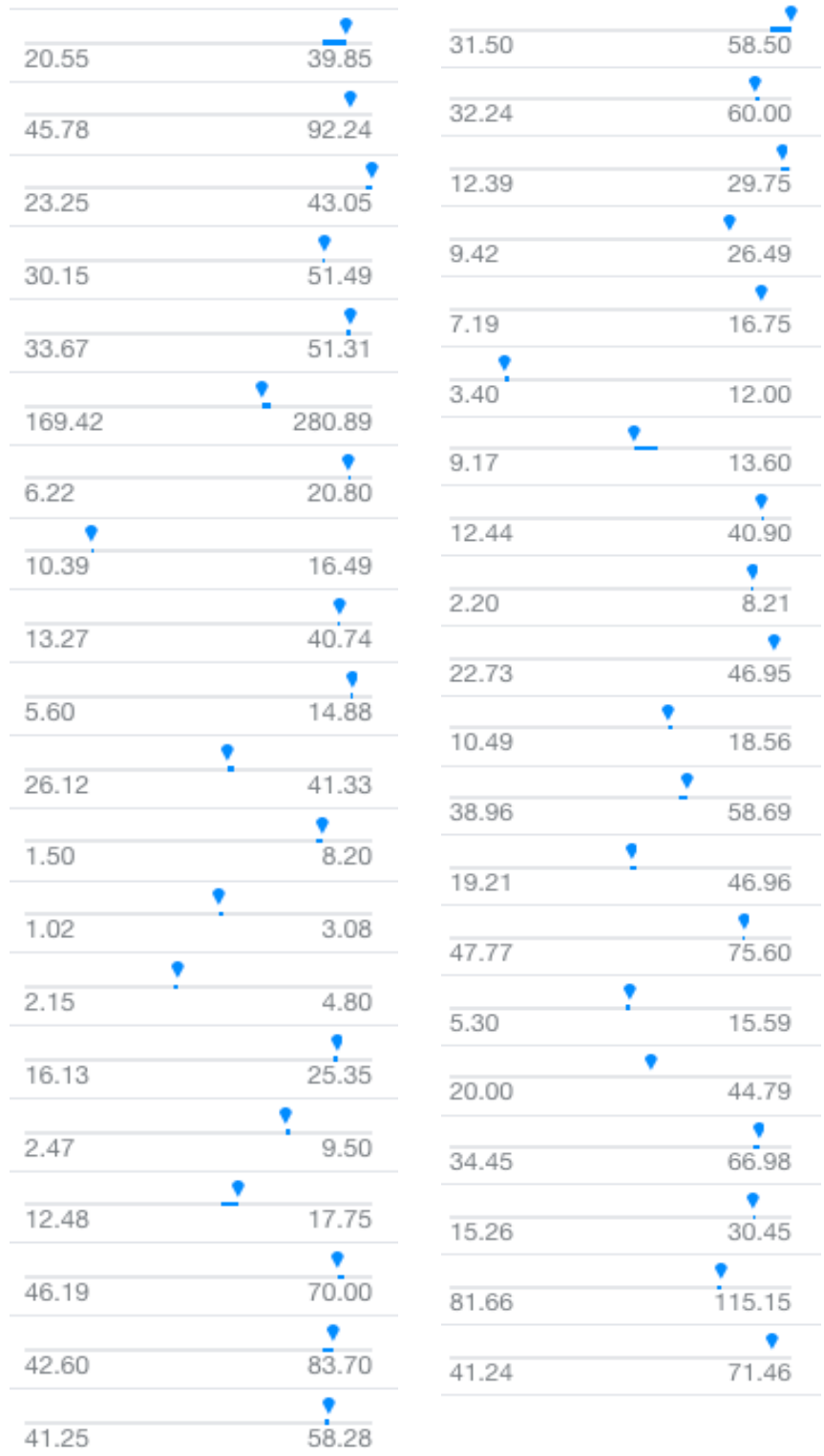
WHPRO Constituents; past 52 weeks as of Dec. 18, 2016 showing past year & on this date, in blue for each:

Column 1:

AIMC
ALB
ANDE
AOS
APOG
AYI
BGC
CPN
GTLS
CECE
CBI
CHK
CIG
CLNE
GLW
CZZ
CVA
ETN
ENS
EMR

Column 2

ESE
FMC
GPRE
GLNG
HCCI
KNDI
LXFR
MTZ
MEOH
NYLD
OC
RRC
RBC
SWN
TTM
TEN
VECO
WBC
WWD



Conclusion:

For 4th Quarter 2016 the Clean Energy Index[®] (ECO) began near 40 and ended near 38 for a loss of about 5%; for the entire year from starting 2016 near 49, ECO was down some -22%. Or, look back 3 years since start of 2014: here the clean energy theme & thus ECO Index[®] at first gained in Q1 2014, then fell and didn't re-test those highs. Declines were broken by an upturn late 2015 then clean energy fell Q1 to Q2 2016, and went mostly sideways Q3/Q4 for a clean energy theme that has dropped hard at times while carrying much risk. Yet it should be noted the fossil fuels have fallen harder over say the last 5 years than ECO: oil, coal & natural gas all dropped farther than clean energy over this past five years period.

By contrast Progressive Energy WHPRO moved strongly upside 2016 touching near +40% up; global new energy NEX was mainly flat to down, although less down than ECO. Post-election however, WHPRO posted sharp gains, ECO saw modest rises, and NEX was more level.

Lastly, four constituents were deleted from ECO to start Q1 2017: ENPH, ITC, SCTY & SOL; two additions to ECO for Q1 2017 were BGC to the Power Delivery sector, and VECO to the Energy Conversion sector; extant CREE & LYTS were moved from the Power Delivery Sector - to Energy Conversion Sector. At a separate WilderHill Progressive Energy Index (WHPRO) to start Q1, 2 deletions were BGC & VECO; 3 additions here were HDSN & LDL that both went in the New Energy Activity Sector, and PEIX in the Renewable Fuels Sector of WHPRO.

As always we welcome your thoughts and suggestions.

Sincerely,



Dr. Rob Wilder
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Appendix I:

ECO Index (via an independent tracker PBW) for Descending Weights & Components in late-Q4 on 12/9/2016 or about 2 weeks before rebalance to start Q1 2017. 37 stocks*:

<u>Name</u>	<u>Ticker</u>	<u>Weight</u>
Tesla Motors Inc	TSLA	6.565
Hexcel Corp	HXL	4.264
Sociedad Quimica y Minera de Chile	SQM	4.135
Quanta Services Inc	PWR	3.949
Advanced Energy Industries Inc	AEIS	3.805
Renewable Energy Group Inc	REGI	3.53
Daqo New Energy Corp ADR	DQ	3.511
Gentherm Inc	THRM	3.444
Ormat Technologies Inc	ORA	3.431
Itron Inc	ITRI	3.42
Ameresco Inc	AMRC	3.407
Canadian Solar Inc	CSIQ	3.37
Cree Inc	CREE	3.163
First Solar Inc	FSLR	3.091
Air Products & Chemicals Inc	APD	3.077
SunPower Corp	SPWR	3.076
Sunrun Inc	RUN	3.027
Atlantica Yield plc	ABY	3.026
JA Solar Holdings Co Ltd ADR	JASO	2.988
Plug Power Inc	PLUG	2.977
Universal Display Corp	OLED	2.948
TerraForm Power Inc	TERP	2.946
TerraForm Global Inc	GLBL	2.945
Ballard Power Systems Inc	BLDP	2.894
LSI Industries Inc	LYTS	2.843
Silver Spring Networks Inc	SSNI	2.743
SolarEdge Technologies Inc	SEDG	2.659
Hanwha Q CELLS Co Ltd ADR	HQCL	2.632
Pattern Energy Group Inc	PEGI	2.575
American Superconductor Corp	AMSC	0.595
Enphase Energy Inc	ENPH	0.571
EnerNOC Inc	ENOC	0.538
Maxwell Technologies Inc	MXWL	0.505
Sky Solar Holdings Ltd ADR	SKYS	0.402
ReneSola Ltd ADR	SOL	0.377
Hydrogenics Corp	HYGS	0.373
FuelCell Energy Inc	FCEL	0.198

*SCTY and ITC ended regular trading in Q4 intra-Quarter.

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

INDEX (ECO) SECTOR & STOCK WEIGHTS FOR START OF Q1 2017. 37 STOCKS.

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

*Stocks below \$200 million in size at rebalance are *banded with a 0.5% weight.

Renewable Energy Harvesting - 26% sector weight (8 stocks @3.25% 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.

Hanwha Q Cells, HQCL. Solar, integrated from poly through modules.

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

JA Solar, JASO. Solar, China-based sells PV modules in Asia, Europe, U.S.

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

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

Power Delivery & Conservation - 20% sector weight (6 stocks @3.16%; +2 *banded)

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

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

**EnerNoc*, ENOC. Demand response; better energy management, smart grid.

General Cable, BGC. Power grid innovation, includes high-voltage offshore wind.

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

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

Silver Spring Networks, SSNI. Smart grid, two-way communications aids Utilities.

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

Energy Conversion - 24% sector weight (8 stocks @2.93% each; +1 *banded)

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

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

Cree, CREE. LEDs, manufacturer in power-saving lumens, efficient lighting.

**FuelCell Energy*, FCEL. Large fuel cells, high-operating temps, multiple-fuels.

Gentherm, THRM. Thermoelectrics, waste heat to energy, power harvesting.

LSI Industries, LYTS. Lighting, LEDs, is vertically integrated U.S. manufacturer.

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

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

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

Greener Utilities - 16% sector weight (5 stocks @3.10% each; +1 *banded stock)

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

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

**Sky Solar*, SKYS. Solar farms, creating & operating utility-scale projects.

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

TerraForm Global, GLBL. Owns operates renewable assets in emerging nations.

TerraForm Power, TERP. Owns operates solar/wind, developed nations, yieldco.

Energy Storage - 7% sector weight (2 stocks @3.25% each; +1 *banded stock)

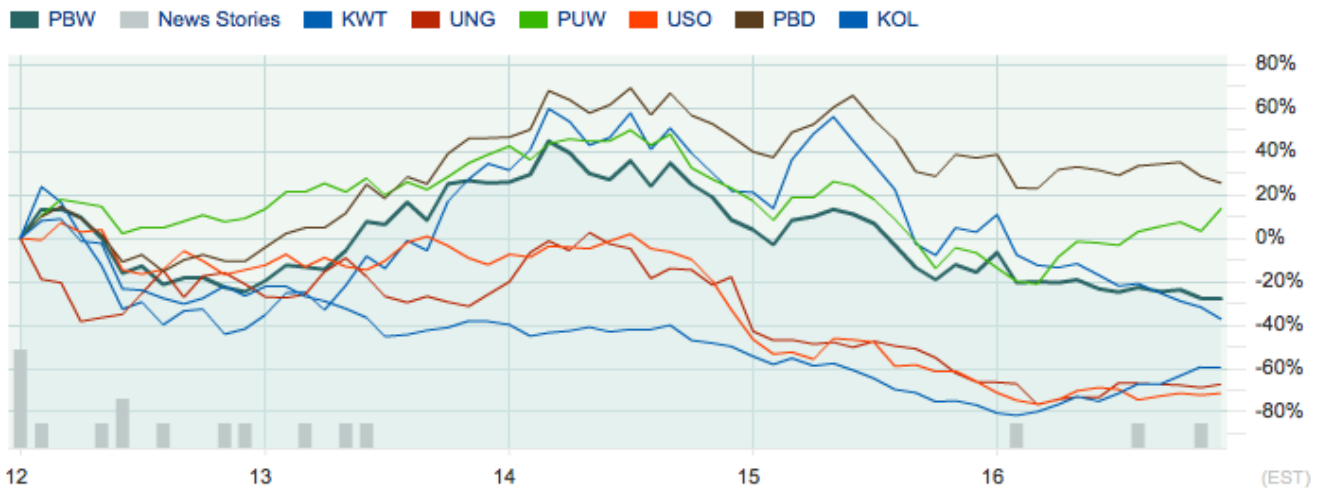
**Maxwell*, MXWL. Ultracapacitors, an alternative assisting batteries in hybrids.

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

Tesla Motors, TSLA. Electric vehicles, solar; purer-play in EVs & energy storage.

Cleaner Fuels - 7% sector weight (2 stocks @3.25% each; +1 *banded stock)
Air Products & Chemicals, APD. Hydrogen, is a supplier of industrial gases.
**Hydrogenics*, HYGS. Hydrogen, fuel and electrolysis for fuel cells, H2 storage.
Renewable Energy Group, REGI. Biodiesel, natural fats, oils, grease to biofuels.

ECO (via independent tracker, bold) along with many 'tough times' for clean & fossil fuel themes past ~5 years, from 2012 to Dec. 1, 2016; a time of big declines:



Source: Bigcharts.com

As seen by **ECO** (via tracker **bold**) plus several themes above, the last 5 years have been **very rough** for many themes in clean, alternative, & traditional fossil fuel energy. For example despite **ECO** falling hard and ending this period down near some -30%, it still sits above a tracker for **Solar-only Index** (blue), well above an **oil tracker**, orange, quite above a tracker for **Coal** also blue once at bottom (coal rising sharply in 2016), and above too a **Natural Gas** tracker bottom (burnt orange). These last 5 years were remarkably tough across many energy themes, including all fossil fuels: oil, coal, natural gas! But Not All Relevant Energy themes have suffered so - as indicated in the next paragraph...

Of small note finishing positive above with 'much better' results not far from each other here, are the global new energy NEX, **brown** very top (tracker PBD) - and nearby in **light green** (ironically) is 'brownish-themed' WilderHill **Progressive Energy Index** (WHPRO); both are actually up near +30% & +20% respectively in a 5 year period. It's interesting too to see Global clean new energy as captured by NEX did relatively quite 'better' than ECO in 2014 up to Q2 2016 above (though not Q3/Q4 2016) as both are in clean/new energy.

Appendix III: WHPRO Index via an independent tracker PUW; component weights as seen in late-Q4 2016 on 12/9/2016 or about 2 weeks before the rebalance to start Q1 2017. 41 Stocks:

<u>Name</u>	<u>Ticker</u>	<u>Weight</u>
McDermott International Inc	MDR	4.282
Methanex Corp	MEOH	3.696
General Cable Corp	BGC	3.358
Veeco Instruments Inc	VECO	3.187
Regal Beloit Corp	RBC	3.108
Andersons Inc/The	ANDE	3.096
ESCO Technologies Inc	ESE	3.05
Altra Industrial Motion Corp	AIMC	3.01
MasTec Inc	MTZ	2.97
Tenneco Inc	TEN	2.929
Chesapeake Energy Corp	CHK	2.918
Cosan Ltd	CZZ	2.86
Woodward Inc	WWD	2.813
Green Plains Inc	GPRE	2.782
Chicago Bridge & Iron Co NV	CBI	2.771
Apogee Enterprises Inc	APOG	2.761
Chart Industries Inc	GTLS	2.738
Corning Inc	GLW	2.737
Emerson Electric Co	EMR	2.701
EnerSys	ENS	2.587
FMC Corp	FMC	2.58
Range Resources Corp	RRC	2.559
AO Smith Corp	AOS	2.549
Golar LNG Ltd	GLNG	2.501
Albemarle Corp	ALB	2.416
Eaton Corp PLC	ETN	2.412
Acuity Brands Inc	AYI	2.314
Owens Corning	OC	2.311
Southwestern Energy Co	SWN	2.27
WABCO Holdings Inc	WBC	2.18
Tata Motors Ltd ADR	TTM	2.133
Clean Energy Fuels Corp	CLNE	2.066
NRG Yield Inc	NYLD	2.014
Covanta Holding Corp	CVA	2.013
Hannon Armstrong Sustainable Infra.	HASI	1.842
Calpine Corp	CPN	1.796
Cia Energetica de Minas Gerais ADR	CIG	1.732
CECO Environmental Corp	CECE	0.596
Heritage-Crystal Clean Inc	HCCI	0.526
Luxfer Holdings PLC ADR	LXFR	0.433
Kandi Technologies Group Inc	KNDI	0.404

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Appendix IV: WHPRO Index for the start of the New Quarter.

Sectors & Stock Weightings: WilderHill Progressive Energy Index (WHPRO) for start of Q1 2017. 42 stocks.

Each stock freely moves according to its share price after the rebalance; *Banded stocks are those under \$400 million in size and weighted at 0.5%.

Alternative Fuel - 23% Sector Weight (9 stocks @2.55% each)

Andersons, ANDE. Ethanol producer, corn-based; rail group is in fuel transport.
Chesapeake Energy, CHK. Natural gas, one of larger U.S. independent producers.
Clean Energy Fuels, CLNE. Natural gas fuel integration; for use in fleet vehicles.
Cosan, CZZ. Biofuels, Brazil-based using sugarcane feedstock, ethanol exporter.
Green Plains Energy, GPRE. Biofuel, ethanol; using U.S. domestic corn feedstock.
Methanex, MEOH. Methanol, liquid fuel may be derived from fossil fuels or organics.
Pacific Ethanol, PEIX. Biofuels, major U.S. producer of lower-carbon fuels.
Range Resources, RRC. Natural gas, produces in Appalachian & Gulf Coast regions.
Southwestern Energy, SWN. Natural gas, U.S. producer, also midstream services.

Conversion & Storage - 25% Sector weight (10 stocks @2.50% each)

Albermarle, ALB. Lithium & Lithium Compounds; for energy storage, transportation.
Altra Holdings, AIMC. Mechanical power transmission, electromechanical conversion.
Chart Industries, GTLS. Natural gas, LNG; liquefied gas storage/transport, efficiency.
Chicago Bridge & Iron, CBI. Engineering, natural gas, next-gen nuclear designs.
Covanta Holding, CVA. Incineration, converts waste to energy (WtE); conglomerate.
EnerSys, ENS. Battery maker, for telecommunications, utilities, motive power.
FMC, FMC. Lithium producer for carbonate, metal, expanding hydroxide capacity.
Golar LNG, GLNG. LNG, major independent carrier, gas transport, regasification.
MasTec, MTZ. Engineering & construction, distribution of electricity, natural gas.
Wabco, WBC. Mechatronics, better vehicle mechanical/energy/braking controllers.

Better Efficiency - 19% Sector Weight (7 stocks @2.71% each)

Acuity Brands, AYI. LED lights, OLEDs, and controls for indoor & outdoor lighting.
A.O. Smith, AOS. Energy efficiency, innovations for water heating & monitoring.
Apogee, APOG. Advanced glass, for better efficiency, green building designs.
Emerson Electric, EMR. Broad work in energy efficiency, storage, lately biofuels.
Esco Technologies, ESE. Power grid, advances 2-way metering & communications.
Regal Beloit, RBC. Energy efficient motors, in commercial, industrial, homes etc.
Woodward, WWD. Energy controllers, optimization, industrial turbines in generation.

Emission Reduction - 14% Sector Weight (5 stocks @2.60% each +2 *banded)

CECO Environmental, CECE. End-of-pipe emissions controls and pollution reduction.
Corning, GLW. Diverse, activity includes emissions reduction, filters, and catalysts.
**Kandi Technologies*, KNDI. Developing small gasoline and urban electric vehicles.
**Luxfer Holdings PLC*, LXFR. Advanced material, reduced emissions, gaseous storage.
McDermott, MDR. Natural Gas; fewer emissions/CO2 vs. coal; EPCI in LNG facilities.
Tata Motors, TTM. Smaller & 'nano' vehicles, India-based with worldwide sales.
Tenneco, TEN. Automotive end-of-pipe emissions controls, catalytic converters.

New Energy Activity - 9% Sector weight (3 stocks @2.66% each +2 *banded stocks).

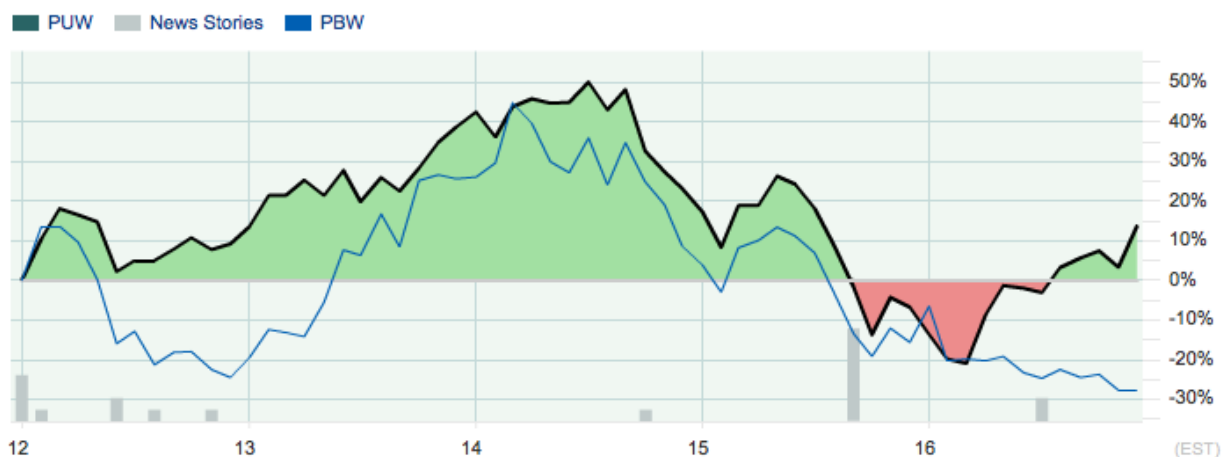
Eaton, ETN. Hybrids, better electric and fluid power in truck & auto applications.

**Hudson*, HDSN. Refrigerants, HFCs reclamation; reduces potent greenhouse gases.
 **Heritage Crystal Clean*, HCCI. Oil re-refining, modern waste reuse and recycling.
Lydall, LDL. Thermal and filtration separation; innovative energy efficiency.
Owens Corning, OC. Materials lightening, building insulation composite materials.

Utility - 10% Sector weight (4 stocks @2.50% each)

Calpine, CPN. Natural Gas & Geothermal, North America, lower-carbon assets
Companhia Energetica de Minas Cemig, CIG. Brazil Utility, large hydroelectric.
Hannon Armstrong, HASI. Energy efficiency, capital & finance for infrastructure.
NRG Yield, NYLD. Contracted power generation and thermal, also some renewables.

Chart for WHPRO Index via independent tracker (in bold) Past 5 years to Nov. 30, 2016 - versus the ECO Index in light blue via an independent tracker:



Source: Bigcharts.com

WHPRO Index in bold last 5 years for 2012 - Nov. 30, 2016 is seen via a tracker above. This includes a period of WHPRO rising from 2012 to Summer 2014 and hitting a relative high - dropping strongly to a February nadir early 2016 - then rising strongly Year to Date to December 2016 - and so finishing up some +15%, while ECO is down near -30%. This Progressive WHPRO theme for less CO2/pollution from fossil fuels had in this period moved at times rather unlike the ECO basket tracker blue, that dropped relatively much harder in 2012, and again hard from 2014 and stayed lower through here latter 2016.

Another observation is this chart above is quite different from a 5 years chart to Q2 /June 2016, as was shown in a prior ECO Quarterly Report; that chart to mid-year had shown WHPRO finishing down about -20%, ECO down nearly -60%. One difference can be attributed to starting points: June 2011 vs Jan. 2012 - as WHPRO tracker starts out much lower here down near \$23 - the ECO tracker too starting lower at near \$5. Sharp declines back some 5 years ago, in 2011, meant the Indexes might display 'better' past-5 year returns now.

That said, all 3 WilderHill Indexes are here, in 2016, far below their previous all time highs. ECO for example is much lower - having been in 2007 several-fold higher - in some real part due to a solar sector sub-theme falling so greatly from its peaks. As always, past movements are not an indication of future performance - whether in solar, or elsewhere.

Appendix V: WilderHill New Energy Global Innovation Index (NEX) seen late-Q4 2016 via independent tracker (PBD) on 12/9/16 or ~2 weeks before Rebalance to start Q1 2017. 94 in tracker:

Name	Ticker	Weight
Tesla Motors Inc	TSLA	3.406
Veeco Instruments Inc	VECO	2.998
Itron Inc	ITRI	2.416
Cree Inc	CREE	2.239
Caverion Corp	CAV1V FH	2.13
Kingspan Group PLC	KSP	2.12
Meidensha Corp		6508
Universal Display Corp	OLED	2.105
Acuity Brands Inc	AYI	2.087
Epistar Corp		2448
Greencoat UK Wind PLC/Funds	UKW LN	1.978
Renewables Infrastructure Group Ltd	TRIG LN	1.95
Xinjiang Goldwind Science & Technology		2208
China High Speed Transmission Equipment		658
Nibe Industrier AB	NIBEB SS	1.908
Philips Lighting NV	LIGHT	1.889
Hannon Armstrong Sustainable Infrastructure	HASI	1.87
TransAlta Renewables Inc	RNW	1.841
China Longyuan Power Group Corp Ltd		916
NRG Yield Inc	NYLD	1.789
Boralex Inc	BLX	1.785
Saeta Yield SA	SAY	1.732
China Power New Energy Development		735
Huaneng Renewables Corp Ltd		958
DONG Energy A/S	DENERG DC	1.71
Gamesa Corp Tecnologica SA	GAM	1.692
Pattern Energy Group Inc	PEGI	1.685
Senvion SA	SEN	1.652
EDP Renovaveis SA	EDPR	1.622
Nordex SE	NDX1	1.61
Canadian Solar Inc	CSIQ	1.568
Vestas Wind Systems A/S	VWS DC	1.53
Atlantica Yield plc	ABY	1.509
Gigasolar Materials Corp		3691
TerraForm Power Inc	TERP	1.504
GCL-Poly Energy Holdings Ltd		3800
Energy Absolute PCL	EA-R TB	1.471
Green Plains Inc	GPRE	1.452
First Solar Inc	FSLR	1.427
SunPower Corp	SPWR	1.426
SolarEdge Technologies Inc	SEDG	1.241
Drax Group PLC	DRX LN	1.217
Canvest Environmental Protection Group		1381
GS Yuasa Corp		6674
SMA Solar Technology AG	S92	1.202

Xinyi Solar Holdings Ltd	968	1.08
Ormat Technologies Inc	ORA	0.988
Sao Martinho SA	SMT03	0.987
Mercury NZ Ltd	MCY	0.976
FDG Electric Vehicles Ltd	729	0.956
China Everbright International Ltd	257	0.937
Contact Energy Ltd	CEN	0.934
Innergex Renewable Energy Inc	INE	0.909
BYD Co Ltd	1211	0.885
Energy Development Corp	EDC	0.869
Utilitywise PLC	UTW LN	0.856
Novozymes A/S	NZYMB DC	0.803
Ameresco Inc	AMRC	0.687
Dialight PLC	DIA LN	0.672
Wasion Group Holdings Ltd	3393	0.656
EnerNOC Inc	ENOC	0.625
LSI Industries Inc	LYTS	0.575
Ricardo PLC	RCDO LN	0.571
Odelic Co Ltd	6889	0.57
Silver Spring Networks Inc	SSNI	0.554
Kandi Technologies Group Inc	KNDI	0.543
Everlight Electronics Co Ltd	2393	0.535
China Titans Energy Technology Group	2188	0.524
REC Silicon ASA	REC	0.469
West Holdings Corp	1407	0.43
Renewable Energy Group Inc	REGI	0.398
SPCG PCL	SPCG-R TB	0.393
Vivint Solar Inc	VSLR	0.375
Capital Stage AG	CAP	0.357
Sino-American Silicon Products Inc	5483	0.354
Neo Solar Power Corp	3576	0.354
VERBIO Vereinigte BioEnergie AG	VBK	0.353
GCP Infrastructure Investments Ltd	GCP LN	0.352
China Singyes Solar Technologies Holdings	750	0.335
JA Solar Holdings Co Ltd ADR	JASO	0.332
Motech Industries Inc	6244	0.332
United Photovoltaics Group Ltd	686	0.31
Maxwell Technologies Inc	MXWL	0.302
Albioma SA	ABIO FP	0.283
Takuma Co Ltd	6013	0.27
Shunfeng International Clean Energy Ltd	1165	0.258
Verbund AG	VER AV	0.255
Plug Power Inc	PLUG	0.239
Ballard Power Systems Inc	BLD	0.23
Blue Solutions	BLUE FP	0.212
Akenerji Elektrik Uretim AS	AKENR TI	0.208
Meyer Burger Technology AG	MBTN1 SW	0.17
FuelCell Energy Inc	FCEL	0.099
Meyer Burger Technology AG	MBTN SW	0.096

For current values, http://www.nex-index.com/Constituents_And_Weightings.php

Or see also for more NEX data: http://www.nex-index.com/Constituents_And_Weightings.php

Here are links to quotes to NEX Index available on the web:

NEX Quotes & Data	Ticker	Bigcharts	Bloomberg	Marketwatch	Yahoo
USD Price Index	NEX	51599W10	NEX:IND	NEX	^NEX
EUR Price Index	NEXEU	26499Z42	NEXEU:IND	NEXEU	^NEXEU
GBP Price Index	EXBP	26499Z40	NEXBP:IND	NEXBP	^NEXBP
JPY Price Index	NEXJY	26499Z38	NEXJY:IND	NEXJY	^NEXJY
USD Total Return Index	NEXUST	26499Z43	NEXUST:IND	NEXUST	^NEXUST
EUR Total Return Index	NEXEUT	26499Z41	NEXEUT:IND	NEXEUT	^NEXEUT
GBP Total Return Index	NEXBPT	26499Z39	NEXBPT:IND	NEXBPT	^NEXBPT
JPY Total Return Index	NEXJYT	26499Z37	NEXJYT:IND	NEXJYT	^NEXJYT

NEX Index Sector

Weights - Q4 2016

Key

NEX Sector

1.00%	ECV	Energy Conversion
31.83%	EEF	Energy Efficiency
5.64%	ENS	Energy Storage
9.03%	RBB	Renewables - Biofuels & Biomass
5.43%	ROH	Renewables - Other
17.92%	RSR	Renewable - Solar
29.14%	RWD	Renewable - Wind

Appendix VI:

WilderHill New Energy Global Innovation Index (NEX) for start of Q1 2017. 97 stocks.

Grouped here by their NEX Index Sector:

NEX Index Constituent

Recent Main

Weight for

Name

NEX Sector

Q1 2017

Ballard Power Systems Inc	ECV	0.0050
Plug Power Inc	ECV	0.0050
Silver Spring Networks Inc	EEF	0.0052
Everlight Electronics Co Ltd	EEF	0.0052
Ricardo PLC	EEF	0.0052
Wasion Group Holdings Ltd	EEF	0.0052
Dialight PLC	EEF	0.0052
Ameresco Inc	EEF	0.0052
LSI Industries Inc	EEF	0.0052
Kandi Technologies Group Inc	EEF	0.0052
Odelic Co Ltd	EEF	0.0052
EnerNOC Inc	EEF	0.0052
China Titans Energy Technology Group Co Ltd	EEF	0.0052
Utilitywise PLC	EEF	0.0052
Maxwell Technologies Inc	ENS	0.0042
Tanaka Chemical Corp	ENS	0.0042
Advanced Lithium Electrochemistry Cayman	ENS	0.0042

Takuma Co Ltd	RBB	0.0032
Albioma SA	RBB	0.0032
VERBIO Vereinigte BioEnergie AG	RBB	0.0032
Renewable Energy Group Inc	RBB	0.0032
Akenerji Elektrik Uretim AS	ROH	0.0025
SolarEdge Technologies Inc	RSR	0.0038
GCP Infrastructure Investments Ltd	RSR	0.0038
Capital Stage AG	RSR	0.0038
Sino-American Silicon Products Inc	RSR	0.0038
SPCG PCL	RSR	0.0038
Neo Solar Power Corp	RSR	0.0038
Motech Industries Inc	RSR	0.0038
United Photovoltaics Group Ltd	RSR	0.0038
Shunfeng International Clean Energy Ltd	RSR	0.0038
China Singyes Solar Technologies Holdings Ltd	RSR	0.0038
REC Silicon ASA	RSR	0.0038
Vivint Solar Inc	RSR	0.0038
JA Solar Holdings Co Ltd	RSR	0.0038
Meyer Burger Technology AG	RSR	0.0038
West Holdings Corp	RSR	0.0038
Sunrun Inc	RSR	0.0038
TPI Composites Inc	RWD	0.0049
SENVION SA	RWD	0.0049
Saeta Yield SA	RWD	0.0049
China Power New Energy Development Co Ltd	RWD	0.0049
OSRAM Licht AG	EEF	0.0183
Tesla Motors Inc	EEF	0.0183
Acuity Brands Inc	EEF	0.0183
Kingspan Group PLC	EEF	0.0183
Nibe Industrier AB	EEF	0.0183
Philips Lighting NV	EEF	0.0183
Universal Display Corp	EEF	0.0183
Cree Inc	EEF	0.0183
Itron Inc	EEF	0.0183
Veeco Instruments Inc	EEF	0.0183
Hannon Armstrong Sustainable Infrastructure	EEF	0.0183
Caverion Corp	EEF	0.0183
Epistar Corp	EEF	0.0183
Meidensha Corp	EEF	0.0183
Byd Co Ltd	ENS	0.0146
GS Yuasa Corp	ENS	0.0146
FDG Electric Vehicles Ltd	ENS	0.0146
Novozymes A/S	RBB	0.0111
China Everbright International Ltd	RBB	0.0111
Energy Absolute PCL	RBB	0.0111
Sao Martinho SA	RBB	0.0111

Drax Group PLC	RBB	0.0111
Green Plains Inc	RBB	0.0111
Canvest Environmental Protection	RBB	0.0111
Verbund AG	ROH	0.0086
Mercury NZ Ltd	ROH	0.0086
Contact Energy Ltd	ROH	0.0086
Ormat Technologies Inc	ROH	0.0086
Energy Development Corp	ROH	0.0086
Innergex Renewable Energy Inc	ROH	0.0086
First Solar Inc	RSR	0.0132
GCL-Poly Energy Holdings Ltd	RSR	0.0132
Xinyi Solar Holdings Ltd	RSR	0.0132
Atlantica Yield plc	RSR	0.0132
SunPower Corp	RSR	0.0132
SMA Solar Technology AG	RSR	0.0132
Canadian Solar Inc	RSR	0.0132
Gigasolar Materials Corp	RSR	0.0132
Superblock PCL	RSR	0.0132
TerraForm Power Inc	RWD	0.0170
Vestas Wind Systems A/S	RWD	0.0170
DONG Energy A/S	RWD	0.0170
China Longyuan Power Group Corp	RWD	0.0170
Xinjiang Goldwind Science & Tech	RWD	0.0170
EDP Renovaveis SA	RWD	0.0170
Gamesa Corp Tecnologica SA	RWD	0.0170
Huaneng Renewables Corp Ltd	RWD	0.0170
NRG Yield Inc	RWD	0.0170
TransAlta Renewables Inc	RWD	0.0170
Nordex SE	RWD	0.0170
Pattern Energy Group Inc	RWD	0.0170
China High Speed Transmission Equipment	RWD	0.0170
Greencoat UK Wind PLC/Funds	RWD	0.0170
Renewables Infrastructure Group Ltd/The	RWD	0.0170
Boralex Inc	RWD	0.0170

*The Global NEX Index only is a unique co-equal Partnership of three entities: Bloomberg New Energy Finance with global presence; Josh Landess of First Energy Research; and Dr. Rob Wilder - all jointly as WilderHill New Energy Finance LLC (WHNEF). The NEX is produced by this WHNEF.
