



Q2 2019 Quarterly Report: WilderHill Clean Energy Index®, June 30, 2019

The Clean Energy Index® ([ECO](#)) began 2nd Quarter 2019 near 55 and it ended Q2 near 61, up some +10%. As ECO had begun 2019 near 44, 1st half 2019 this Index is now up roughly +38. Or since 2017 when the ECO Index® was then near 38, for past 2½ years it's risen some +60%. After some seeming resistance, ECO broke above 60 late Q2; and since we get requests for full much lengthier ECO & NEX Historical Data - a link is at bottom of this Report for closing Values since Inception for ECO from August of 2004, & for the NEX from March of 2006. Separately an independent tracking fund at start of 2017 was near 18.5, start of 2018 was near 25.5, at start of 2019 was near 21.5, and more recently closed Q2 near 29.5.

Those large recent gains are notable. Yet ECO passively captures an emerging theme, and so it also can & does at times also 'drop like a rock.' That said such gains in ECO have been seen before - as well as remarkably bigger declines. And we offer merely an observation: perhaps counter-intuitively, the ECO theme has spiked up at times in a Bush II & Trump Presidency - though neither greatly promoted 'greener' energy - meanwhile, some very big drops were seen during 8 years of an Obama Presidency that instead had favored this sector.

ECO, the original for clean energy climate change solutions, last 5 years is down some -15%. Yet over those same 5 years many dominant energy themes have stronger downwards stories; two fossil fuels have dropped hard with an oil story down some -70%, natural gas down -80%. Thus 'brownier' dominant oil & natural gas have fallen much more than 'green' clean energy did last 5 years. Coal rose 2016/2017 back towards nearer, but still below ECO. And past 10 years saw tremendous drops with quite polluting fossil fuels falling even more. So far in 2019 green themes and especially solar - have seen very strongest gains year to date.

WilderHill® New Energy Global Innovation Index (NEX) theme worldwide mostly outside the U.S. is up YTD, & past 2 years, although less so than ECO. NEX started 2019 near 162 and it ended Q2 near 193. The past 5 years the NEX is off around -10% yet for these energy themes, that's rather 'less down' than many passive Indexes & active Funds focusing on energy.

New NEX methodology language noted at rebalancing "components generally are all equally weighted; respective sector weightings are in accordance with number of Index components assigned to each NEX sector, components and sectors adjusted if necessary as determined by the Index Provider and reviewed each quarter. (Between 2006-2019, sector components were previously divided into two categories, large and small; and sector weights had been based on external surveys of market capitalizations of companies deemed active in new energy)." But first, here's recently the ECO Index over 2nd Quarter up to late-June:



Source: NYSE.com

The ECO Index live since 2004 is the first & best-known to capture clean energy and new climate change solutions; ECO is a benchmark and product of WilderHill®. As is usual we'll look next at a past 12 Months, here from June 2018 - to early June 2019 and so a glimpse at clean, alternative - as well as at the other dominant 'dirty' energy themes; differences among diverse 'green'/low-CO2 (which we focus upon) & the 'brown' stories again stand out.

In this period a coal story is lowest at very bottom via passive Index/tracker: that major theme is down here some -25%. Next following a gap is another 'brown' so again fossil fuel story that also is far down, a passive Oil Index via its tracker that's 'better', off about -15%. Next 'up' but after a gap is an independent tracker for global new energy innovation mainly outside U.S. captured by the NEX Index and that is relatively near nil at 'just off' some -5%. Quite close to it & rather matching is an active mutual fund similarly for new alternative energy worldwide, it is just off even-standing also at about -5%.

Next truly up and in positive territory is an independent tracker for clean energy ECO (bold), seen here up about +7%. Roughly tied though a bit higher is a passive tracker for global clean energy (not ours) up some +10%. Highest is a Solar tracker after a Big 2019 Runup near +15%. Clearly 2019 has been positive Year to Date for 3 green themes - while the browner fossil fuel stories of coal, oil are well down. (Natural gas is again omitted as its gyrations can distort this Chart for other themes - but still ended this period off some -10%). And as has been so often seen, the passive Indexes are here 'beating' an actively-managed fund.



Source: bigcharts.com

We'll next look back since early 2010 - about last 9 years, or closer to a decade - to early June 2019 in a chart below. Included are dirty fossil fuels oil & coal, & shown again is natural gas along with all the same themes above. Most dramatic at bottom is Natural Gas which even after some 2018 gains has remained crashed over -90%! Although since Spring 2009 might have marked a bottom nadir for numerous stories with many just rebounding since - not all energy: numerous passive energy themes fell after too, down since Spring 2009.

Next just 'above' natural gas is a passive tracker for Solar: despite its very large rises 2019 YTD, it is still far down over a near-decade by some -75%. Moving 'up', next and well down is a passive Oil theme that fell albeit with some gains since: it's steeply off some -75%.

Hence a bright green (Solar) theme - and 2 browner fossil fuel themes for Natural Gas & Oil - are stories strongly still down a past roughly 9 years, or nearly a decade. Next 'up' (yet far down) is passive Coal and still well down by some -70%; the most-CO2 laden and polluting energy story here coal had earlier trailed more - but its tracker rose hard 2016 & 2017 despite facing some pretty dismal economics - then has faced headwinds again from 2018.

Just 'above' it is an active mutual fund for global alternative energy down about some -60%. Above it is passive tracker for a global cleaner energy Index (not ours) down some -55%. Then is an independent tracker for our clean energy Index (ECO) that's off some -50%.

After a sizable gap so above these 6 stories as 1 for solar, 3 fossil fuels, 2 clean and alternative energy, both passive & active - we next 'highest' global clean energy via passive NEX. That said *it's still well down* some -30%. As for ECO far down -50% over some 9 years, that's even after rising hard 2019 YTD to 'above' (*down less*) than Natural Gas, Solar, Oil, Coal stories plus an active fund for global cleaner energy - yet even so it *still sits well down*.

So 'highest' here is a WilderHill Global New Energy (NEX) story well down, near -30%. (Viewed a fuller 10+ years since Spring 2009, NEX too recovered fully - rather like coal - though NEX is 'better' since). Among all these varied themes, Global New/Clean Energy did 'best' - with several showing big falls down 2x NEX. We note too that NEX & ECO longer-term performances indicate 'it's again pretty tough for active-managed funds to beat passive Indexes':



Source: bigcharts.com

Importantly we note broad (and thus mainly non-energy) Indexes for markets generally such as S&P500, NASDAQ, MSCI etc - which are neither seen nor discussed here since they capture far more than just-energy - did far, far 'better' the past ~10 years.

Conclusion:

The **Clean Energy Index® (ECO)** began 2nd Quarter 2019 near 55 and it ended Q2 near 61, up some +10%. As ECO had begun 2019 near 44, 1st half 2019 this Index is now up roughly +38. Or since 2017 when the **ECO Index®** was then near 38, for past 2½ years it's risen some +60%. Separately an independent tracking fund at start of 2017 was near 18.5, start of 2018 was near 25.5, at start of 2019 was near 21.5, and more recently closed Q2 near 29.5.

The large gain of Q1/Q2 isn't sustainable. Moreover as seen last 5 years, clean energy as captured by ECO is clearly here down some -15%. Yet notably, 2 of 3 major fossil fuel themes have fallen much harder, oil down some -70%, & natural gas down some -80%. The Global NEX past 5 years did 'less badly' here than many energy stories 'just' off -10% or 'less down' relatively-speaking than several passive Indexes, & active Funds for energy themes. Past 10 years reflects a tremendous crash in clean energy, the browner fossil fuels falling more. Yet in 2019, very green themes and especially solar - have seen very strong gains year to date.

A methodology change announcement for **NEX** took effect & is online plus is reposted here at Appendix V Addendum; that had followed a public market consultation process during Q2. Very bottom of this Report, we also post a Link to daily Historical Values for ECO & NEX.

At ECO there were 3 Additions for start of Q3: they were ESE into the Energy Conversion Sector and LTHM & WWD which went in Energy Storage Sector; 3 Deletions were ASYS, AQMS, & LYTS for start of Q3. At NEX there were No Additions nor Deletions to start Q3 2019.

As always, we welcome your thoughts and suggestions.

Sincerely,

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Disclaimer: The following is a reminder from the friendly folks at WilderHill® who worry about liability. Performance figures quoted represent past performance only, with no guarantee of future results. Views expressed are not investment advice and should not be considered as predictive in nature. Positions in ECO Index®, and NEX Index can & do change after rebalancings. Discussions of past performance do not guarantee, and are not indicative of, future performance. These Indexes aim to capture highly volatile sectors, & are volatile too, subject to well above-average changes in valuation. While these materials are intended to provide some very general information, nothing is offered as investment advice: it is believed to be mainly reliable, but we do not warrant completeness, timeliness, or accuracy. The WilderHill Clean Energy Index® (ECO) is published & owned by WilderShares® LLC; and NEX by a separate WilderHill New Energy Finance LLC; no financial instruments or products based on them are sponsored or sold by these entities, and they make no representation regarding advisability of investing in product(s). Marks to WilderHill®, Clean Energy Index®, ECO Index®, WilderShares®, Progressive Energy Index® are registered property; all rights reserved.

Appendix I:
ECO Index (via independent tracker PBW) Descending Weights in latter-Q2 on
6/8/2019, about ~3 weeks before rebalance for Q3 2019, 38 Stocks:

Name	Symbol	Weight
Enphase Energy Inc	ENPH	5.28
SunPower Corp	SPWR	3.99
SolarEdge Technologies Inc	SEDG	3.95
Daqo New Energy Corp ADR	DQ	3.93
JinkoSolar Holding Co Ltd ADR	JKS	3.89
First Solar Inc	FSLR	3.55
Ballard Power Systems Inc	BLDP	3.47
Canadian Solar Inc	CSIQ	3.38
Hexcel Corp	HXL	3.35
Ormat Technologies Inc	ORA	3.33
Itron Inc	ITRI	3.13
Air Products & Chemicals Inc	APD	3.10
Sunrun Inc	RUN	3.00
Atlantica Yield plc	AY	2.95
Advanced Energy Industries Inc	AEIS	2.90
Plug Power Inc	PLUG	2.82
Gentherm Inc	THRM	2.82
Veeco Instruments Inc	VECO	2.73
Cree Inc	CREE	2.65
Universal Display Corp	OLED	2.62
Pattern Energy Group Inc	PEGI	2.62
TerraForm Power Inc	TERP	2.55
Quanta Services Inc	PWR	2.54
Albemarle Corp	ALB	2.47
MYR Group Inc	MYRG	2.45
Sociedad Quimica y Minera Chile	SQM	2.41
Tesla Inc	TSLA	2.29
Bloom Energy Corp	BE	2.26
TPI Composites Inc	TPIC	2.26
Willdan Group Inc	WLDN	2.25
Ameresco Inc	AMRC	2.19
Renewable Energy Group Inc	REGI	1.67
American Superconductor Corp	AMSC	1.60
NIO Inc ADR	NIO	1.50
Hydrogenics Corp	HYGS	0.69
LSI Industries Inc	LYTS	0.66

Amtech Systems Inc
Aqua Metals Inc

ASYS
AQMS

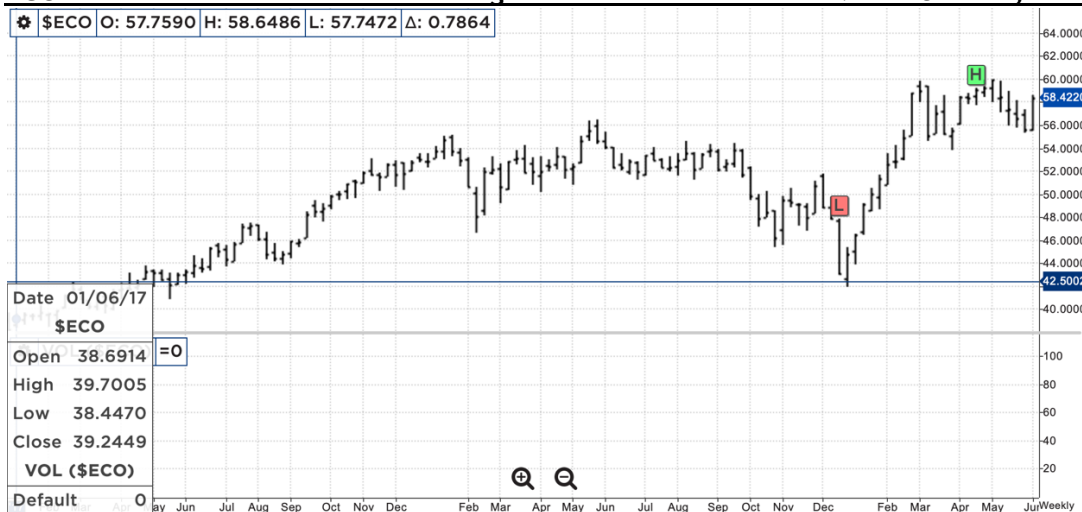
0.50
0.29

ECO via an Independent Tracker (PBW) for Past 2 Years to June 6, 2019:



Source: NASDAQ.com

ECO Index from start of 2017 through first ~21 weeks of 2019 - to June 6, 2019:



Source: NYSE.com

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

INDEX (ECO) SECTOR & STOCK WEIGHTS FOR START OF Q3 2019. 38 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 - 21% weight (8 stocks @2.62% 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 - 21% sector weight (8 stocks @2.62% each)

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

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

Bloom Energy, BE. Stationary fuel cells, distributed, but not-renewable energy.

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

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

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

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

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

Power Delivery & Conservation - 21% sector weight (7 stocks @2.92% 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 - 11% sector weight (4 stocks @2.75% each)

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

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

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

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

Energy Storage - 21% sector weight (8 stocks @2.62% 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.

Hydrogenics, HYGS. Hydrogen, fuel & electrolysis for fuel cells, H2 storage.

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

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

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

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

ECO tracker in bold, NEX tracker - plus other themes across clean energy, & fossil fuels past 5 years to June 2019 with some 'tough times' declines across energy:



Source: bigcharts.com

As seen by **ECO** (in bold), by the NEX plus several other key themes to June 2019, last 5 years were rough for clean, alternative energy & traditional fossil fuel stories, mainly much down. For example despite **ECO** falling hard (then rising Q1/Q2) it's still down near -15%. Yet even that clean energy figure is well above oil & natural gas trackers down some -70%, and -80%. Meanwhile a coal tracker rose 2016/2017 to nearer but is still beneath ECO/NEX. Hence clean energy is down, yet 2 fossil fuels, oil & natural gas are down by much more.

ECO and the NEX only back somewhat near nil, ***and are still down*** in this timeframe.

So last 5 years were arguably tough across energy broadly, the fossil fuels, and clean energy. But Not all themes - if one steps outside of energy-only stories - suffered ...

Much the contrary. Absent here being not only-in-energy and so having broader pictures, are major broad market Indexes like the S&P500 or MSCI - which did much, much 'better' than these far narrower passive energy themes. Unlike those, the ECO & NEX Indexes each aim to passively capture & track their more narrow volatile themes of just *clean energy* - & of *global new energy* respectively which may go strongly down - or perhaps up.

Appendix III: WilderHill New Energy Global Innovation Index (NEX) late-Q2 via independent tracker (PBD) on 6/8/19 or ~3 weeks before Rebalance to start Q3 2019. 106 stocks:

Name	Symbol	Weight
Itron Inc	ITRI	2.07
Landis+Gyr Group AG	LAND SW	2.04
Kingspan Group PLC	KSP	2.00
Acuity Brands Inc	AYI	1.86
Nibe Industrier AB	NIBEB SS	1.85
Signify NV	LIGHT	1.85
Falck Renewables SpA	FKR	1.83
SolarEdge Technologies Inc	SEDG	1.82
Universal Display Corp	OLED	1.78
Hannon Armstrong Sustainable	HASI	1.77
Cree Inc	CREE	1.71
Samsung SDI Co Ltd	006400 KS	1.71
SunPower Corp	SPWR	1.63
GS Yuasa Corp		6674 1.62
Epistar Corp		2448 1.60
Orsted A/S	ORSTED DC	1.59
Clearway Energy Inc	CWEN	1.58
BYD Co Ltd		1211 1.55
Renewables Infrastructure	TRIG LN	1.54
Siemens Gamesa Renewable	SGRE	1.52
Northland Power Inc	NPI	1.51
TransAlta Renewables Inc	RNW	1.49
Pattern Energy Group Inc	PEGI	1.47
Vestas Wind Systems A/S	VWS DC	1.46
Boralex Inc	BLX	1.46
Seoul Semiconductor Co Ltd	046890 KS	1.45
Huaneng Renewables Corp Ltd		958 1.45
First Solar Inc	FSLR	1.43
Greencoat UK Wind	UKW LN	1.41
Sunrun Inc	RUN	1.38
Sociedad Quimica y Minera	SQM	1.37
Nordex SE	NDX1	1.37
Canadian Solar Inc	CSIQ	1.37
Atlantica Yield plc	AY	1.36
China Longyuan Power		916 1.32
Tesla Inc	TSLA	1.31

BCPG PCL	BCPG-R TB		1.31
Sino-American Silicon Products		5483	1.29
Xinyi Solar Holdings Ltd		968	1.26
OSRAM Licht AG	OSR		1.23
Xinjiang Goldwind Science		2208	1.22
Scatec Solar ASA	SSO		1.21
Takuma Co Ltd		6013	1.21
SMA Solar Technology AG	S92		1.20
TerraForm Power Inc	TERP		1.19
GCP Infrastructure Investments	GCP LN		1.18
China High Speed Transmission		658	1.12
TPI Composites Inc	TPIC		1.10
Novozymes A/S	NZYMB DC		1.09
GCL-Poly Energy Holdings Ltd		3800	0.95
Drax Group PLC	DRX LN		0.88
NIO Inc ADR	NIO		0.83
Ormat Technologies Inc	ORA		0.83
Contact Energy Ltd	CEN		0.80
Verbund AG	VER AV		0.78
Meridian Energy Ltd	MEL		0.76
Mercury NZ Ltd	MCY		0.72
Renewable Energy Group Inc	REGI		0.72
Innergex Renewable Energy Inc	INE		0.72
Bloom Energy Corp	BE		0.65
Enphase Energy Inc	ENPH		0.61
Caverion OYJ	CAV1V FH		0.57
Veeco Instruments Inc	VECO		0.51
Credit Suisse Real Estate Green	GREEN SW		0.50
Ricardo PLC	RCDO LN		0.49
Meidensha Corp		6508	0.49
Vivint Solar Inc	VSLR		0.48
EF-ON INC		9514	0.47
Daqo New Energy Corp ADR	DQ		0.46
JinkoSolar Holding Co Ltd ADR	JKS		0.46
Willdan Group Inc	WLDN		0.44
W-Scope Corp		6619	0.44
EDP Renovaveis SA	EDPR		0.44
Voltabox AG	VBX		0.44
Gurit Holding AG	GUR SW		0.44
PNE AG	PNE3		0.44

Tanaka Chemical Corp		4080	0.43
CS Wind Corp	112610 KS		0.43
Gigasolar Materials Corp		3691	0.43
Everlight Electronics Co Ltd		2393	0.42
Ameresco Inc	AMRC		0.41
Audax Renovables SA	INVALID		0.41
West Holdings Corp		1407	0.40
eRex Co Ltd		9517	0.40
Ecopro Co Ltd	086520 KS		0.40
RENOVA Inc		9519	0.39
Lextar Electronics Corp		3698	0.38
Neoen SA	NEOEN FP		0.36
Unison Co Ltd/South Korea	018000 KS		0.36
Albioma SA	ABIO FP		0.36
United Renewable Energy		3576	0.36
Super Energy Corp PCL	SUPER-R TB		0.36
CropEnergies AG	CE2		0.35
Encavis AG	CAP		0.35
Wasion Holdings Ltd		3393	0.35
VERBIO Vereinigte BioEnergie AG	VBK		0.35
SPCG PCL	SPCG-R TB		0.35
Meyer Burger Technology AG	MBTN SW		0.34
Kandi Technologies Group Inc	KNDI		0.32
Motech Industries Inc		6244	0.31
Canvest Environmental Protection		1381	0.30
FDG Electric Vehicles Ltd		729	0.29
Ballard Power Systems Inc	BLDP		0.28
REC Silicon ASA	REC		0.27
NEL ASA	NEL		0.25
Plug Power Inc	PLUG		0.22

*Note: A Methodology Change was outlined in a June NEX Announcement; constituents (eg Q2 above) that had had varied large/ small assignments, went to straighter-equal-weighting from start of Q3 - additionally the Sector Weights are assigned from Q3 2019 & onwards by the number of Constituents within each Sector of NEX (rather than by external Survey); both changes reflected in Q3 below.

Appendix IV:

WilderHill New Energy Global Innovation Index (NEX) - for start of Q3 2019. 106 Stocks.

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

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

Name	Country	NEX Sector	Weight per constituent
Acuity Brands	US	EEF	0.94
Albioma SA	FRANCE	RBB	0.94
Ameresco	US	EEF	0.94
Atlantica Yield plc	SPAIN	RSR	0.94
Audax Renovables SA	SPAIN	RWD	0.94
Ballard Power Systems	CANADA	ECV	0.94
BCPG PCL	THAILAND	RSR	0.94
Bloom Energy	US	ECV	0.94
Boralex	CANADA	RWD	0.94
BYD Co.	CHINA	ENS	0.94
Canadian Solar	CANADA	RSR	0.94
Canvest Environmental	CHINA	RBB	0.94
Caverion OYJ	FINLAND	EEF	0.94
China High Speed Trans.	CHINA	RWD	0.94
China Longyuan Power	CHINA	RWD	0.94
Clearway Energy	US	RWD	0.94
Contact Energy	NEW ZEALAND	ROH	0.94
Cree Inc.	US	EEF	0.94
CropEnergies AG	GERMANY	RBB	0.94
Credit Suisse Real Estate Green	SWITZERLAND	EEF	0.94
CS Wind	S. KOREA	RWD	0.94
Daqo New Energy	CHINA	RSR	0.94
Drax Group PLC	BRITAIN	RBB	0.94
EcoPro	S. KOREA	ENS	0.94
EDP Renovaveis SA	SPAIN	RWD	0.94
EF On Inc.	JAPAN	RBB	0.94
Encavis AG	GERMANY	RSR	0.94
Enphase	US	RSR	0.94
Epistar	TAIWAN	EEF	0.94
eRex Co. Ltd.	JAPAN	RBB	0.94
Everlight Electronics	TAIWAN	EEF	0.94
Falck Renewables SpA	ITALY	RWD	0.94
FDG Electric Vehicles	CHINA	ENS	0.94
First Solar	US	RSR	0.94

GCL-Poly Energy	CHINA	RSR	0.94
GCP Infrastructure	JERSEY	RSR	0.94
Gigasolar Materials	TAIWAN	RSR	0.94
Greencoat UK Wind plc	BRITAIN	RWD	0.94
GS Yuasa	JAPAN	ENS	0.94
Gurit Holding AG	SWITZERLAND	RWD	0.94
Hannon Armstrong	US	EEF	0.94
Huaneng Renewables	CHINA	RWD	0.94
Innergex Renewable	CANADA	ROH	0.94
Itron	US	EEF	0.94
JinkoSolar	CHINA	RSR	0.94
Kandi Technologies	CHINA	EEF	0.94
Kingspan Group plc	IRELAND	EEF	0.94
Landis+Gyr Group AG	SWITZERLAND	EEF	0.94
Lextar Electronics Corp	TAIWAN	EEF	0.94
Meidensha Corp	JAPAN	EEF	0.94
Mercury NZ	NEW ZEALAND	ROH	0.94
Meridian Energy	NEW ZEALAND	ROH	0.94
Meyer Burger Tech	SWITZERLAND	RSR	0.94
Motech Industries	TAIWAN	RSR	0.94
Nel ASA	NORWAY	ECV	0.94
Neoen SA	FRANCE	RSR	0.94
Nibe Industrier AB	SWEDEN	EEF	0.94
Nio	CHINA	EEF	0.94
Nordex SE	GERMANY	RWD	0.94
Northland Power	CANADA	RWD	0.94
Novozymes A/S	DENMARK	RBB	0.94
Ormat	USA	ROH	0.94
Orsted A/S	DENMARK	RWD	0.94
OSRAM Licht AG	GERMANY	EEF	0.94
Pattern Energy Group	US	RWD	0.94
Plug Power	US	ECV	0.94
PNE AG	GERMANY	RWD	0.94
REC Silicon ASA	NORWAY	RSR	0.94
Renewable Energy Group	US	RBB	0.94
Renewables Infrastructure	GUERNSEY	RWD	0.94
Renova	JAPAN	RWD	0.94
Ricardo plc	BRITAIN	EEF	0.94
Samsung SDI	S. KOREA	ENS	0.94
Scatec Solar ASA	NORWAY	RSR	0.94

Seoul Semiconductor Co	S. KOREA	EEF	0.94
Siemens Gamesa	SPAIN	RWD	0.94
Signify NV	NETHERLAND	EEF	0.94
Sino-American Silicon	TAIWAN	RSR	0.94
SMA Solar Technologies	GERMANY	RSR	0.94
Sociedad Quimica de Chile	US	ENS	0.94
SolarEdge	US	RSR	0.94
SPCG pcl	THAILAND	RSR	0.94
SunPower	US	RSR	0.94
Sunrun	US	RSR	0.94
Super Energy Corp PCL	THAILAND	RSR	0.94
Takuma	JAPAN	RBB	0.94
Tanaka Chemical	JAPAN	ENS	0.94
TerraForm Power	US	RSR	0.94
Tesla	US	ENS	0.94
TPI Composites	US	RWD	0.94
TransAlta Renewables	CANADA	RWD	0.94
Unison Co Ltd	S. KOREA	RWD	0.94
United Renewable Energy	TAIWAN	RSR	0.94
Universal Display	US	EEF	0.94
Veeco instruments	US	EEF	0.94
Verbio Vereinigte BioEnergie	GERMANY	RBB	0.94
Verbund AG	AUSTRIA	ROH	0.94
Vestas Wind Systems A/S	DENMARK	RWD	0.94
Vivint Solar	US	RSR	0.94
Voltabox AG	GERMANY	ENS	0.94
W-Scope	JAPAN	ENS	0.94
Wasion Holdings	CHINA	EEF	0.94
West Holdings	JAPAN	RSR	0.94
Willdan Group	US	EEF	0.94
Xinjiang Goldwind	CHINA	RWD	0.94
Xinyi Solar Holdings	CHINA	RSR	0.94

Additions for Q3 2019: None. Deletions for Q3 2019: None.

<u>NEX SECTOR WEIGHTS for Q3 2019:</u>	<u>SECTOR</u>	<u>QUANTITY</u>	<u>% Sector Weight</u>
Energy Conversion	ECV	4	3.77%
Energy Efficiency	EEF	24	22.64%
Energy Storage	ENS	10	9.43%
Renewables - Biofuels & Biomass	RBB	10	9.43%

Renewables - Other	ROH	6	5.66%
Renewable - Solar	RSR	28	26.41%
Renewable - Wind	RWD	24	22.64%
		<u>106</u>	<u>100%</u>

Appendix V:

WilderHill New Energy Global Innovation Index (NEX) - Historical Sector Weights Information.

Historical Sector Weight Information: NEX

Sector Weights At Start Of Quarter*	ECV Energy Conversion	EEF Energy Efficiency	ENS Energy Storage	RBB Renewables - Biofuels & Biomass	ROH Renewables - Other	RSR Renewable - Solar	RWD Renewable - Wind
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%

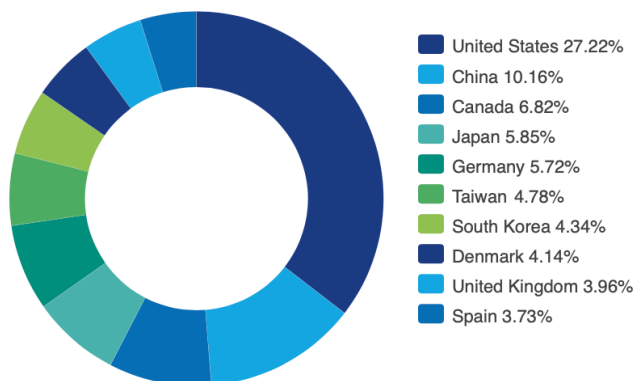
Q4 2011	1.14%	25.06%	4.12%	12.13%	11.63%	26.48%	19.45%
Q3 2011	1.28%	22.72%	6.24%	10.17%	10.49%	24.60%	24.32%
Q2 2011	1.50%	23.34%	8.06%	10.69%	9.53%	25.76%	21.04%
Q1 2011	1.50%	26.95%	6.99%	10.50%	9.46%	24.59%	20.00%
Q4 2010	1.79%	24.32%	8.80%	11.21%	6.02%	24.16%	23.71%
Q3 2010	1.97%	20.31%	8.86%	11.70%	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%

See also, https://nexindex.com/Constituents_And_Weightings.php
https://nexindex.com/historical_sectors.php
And, <https://www.solactive.com/?s=wilderhill>

Country Allocation in an Independent tracking Fund, PBD on June 7, 2019:

Top Country Allocation

as of 06/07/2019



Source: Invesco

See also, https://nexindex.com/Constituents_And_Weightings.php
https://nexindex.com/historical_sectors.php
And, <https://www.solactive.com/?s=wilderhill>

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

***ADDENDUM** for NEX Announcement in Q2 2019; the Following Effective Date announcement was posted online following public market consultation in May & June, and all took effect in Q2 2019:



Methodology Change | WilderHill New Energy Global Innovation Index (NEX) | Effective Date June 20, 2019

San Diego, June 11, 2019 – Today, on June 11, 2019, WilderHill New Energy Finance announces the following changes to the methodology of the WilderHill® New Energy Global Innovation Index (NEX).

WilderHill New Energy Finance (WHNEF) had decided, inter alia, to amend the Index methodology and therefore, due to the fact that certain amendments are deemed to be materials changes, to initiate a market consultation. WHNEF has received the feedback of the market and has decided to change the methodology NEX Index.

Taking this into account, WHNEF has decided to amend as follows:

At Methodology the following two paragraphs:

“The Index is calculated using a modified equal-dollar weighting methodology. At the time of rebalancing each Index sector is assigned an overall weight in line with that sector's market capitalization within the NEX's component selection universe, adjusted if necessary to avoid problems of illiquidity or over-concentration on any individual sector. Each sector's components are divided into two categories, large and small. Large components are given three and half times the weight of small components within their sector, and are defined as having an individual market capitalization over \$750 million. Components may be reassigned between large and small categories within their relevant sectors at the discretion of the Index Committee in order to alleviate concerns of individual component liquidity or restricted availability. Components quoted on those markets that restrict ownership or trading by foreign investors will not be excluded altogether but may be allocated to the small component category within their respective sectors (currently China and India impose restriction on foreign ownership and trading).” shall be deleted and replaced as follows:

“The Index is calculated using a modified equal weighting methodology. At the time of rebalancing components generally are all equally weighted; respective sector weightings are in accordance with number of Index components assigned to each NEX sector, components and sectors adjusted if necessary as determined by the Index Provider and reviewed each quarter.

(Between 2006-2019, sector components were previously divided into two categories, large and small; and sector weights had been based on external surveys of market capitalizations of companies deemed active in new energy)."

Also, at Index Dissemination:

The Chart showing the NEX Index Tickers is changed: Ticker dissemination is replaced – going from 4 currencies/variants in US Dollars, in Euros, GB Pounds, & Japanese Yen – to dissemination in US Dollars alone.

Also at About Us:

Individual biographical information is deleted, removing:

“About Us

WilderHill New Energy Finance LLC

The WilderHill New Energy Global Innovation Index is published by WilderHill New Energy Finance LLC, a partnership between Mr. Josh Landess, and Dr. Robert Wilder.

Dr. Rob Wilder

Dr. Wilder is co-creator & Manager of the WilderHill Clean Energy Index® (ECO), the first and leading index of companies quoted on the US exchanges for renewable energy, better energy efficiency and low-carbon solutions. ECO went live in 2004 and it is tracked by an independent portfolio that launched in 2005.

Rob is co-creator & Manager of WilderHill Progressive Energy Index (WHPRO), the first capturing opportunities for reducing carbon, greenhouse gases and harms from coal, oil, and natural gas; it addresses climate change and the need for improving the still-dominant energy sources of today. WHPRO is tracked by an independent portfolio launched in 2006.

He has J.D. and Ph.D. degrees, is a Fulbright Senior Specialist, has been a Fulbright Fellow, AAAS/EPA Fellow in Environmental Science & Technology, a National Academy of Sciences Young Investigator (twice) and a California Sea Grant Fellow. He's a book author and widely published such as in Nature, Institutional Investor, Stanford Law & Policy Review, UCLA Journal of Environmental Law and Policy, Engineering News-Record, the American Society of Civil Engineers Press, Scientific American, Yale E360, University of Chicago Press, Journal of Alternative Investments and elsewhere. He often lectures globally and has been on the faculty at University of California at Santa Barbara, University of Massachusetts, has been with The Nature Conservancy, a Trustee for Society for Conservation Biology, and is Member Emeritus on the Director's Council at the Scripps Institution of Oceanography at UC San Diego. He lives in a solar-powered home in Encinitas, California.

Josh Landess

Josh Landess is a pioneer in the creation of alternative energy stock market indexes, creating his first in February 2000. In September 2000, he and Rob Wilder teamed up and renamed one of Josh's indexes as The WilderHill Fuel Cell Index, collaborating in researching, maintaining and improving that index.

In 2004, Landess and Wilder, with the help of the American Stock Exchange, led the team that created the WilderHill Clean Energy Index® (ticker: ECO). This was the first clean energy stock market index to be distributed over the tape.

In January of 2006, Landess and Wilder collaborated with New Energy Finance to create The WilderHill New Energy Global Innovation Index. It was the first global index of activity in New Energy that was put out over the tape. Index development was again assisted by the American Stock Exchange.

Josh is based in Rio Rico, AZ, and owns First Energy Research, LLC. Aside from indexing work, he seeks to maintain, as time permits, an advocacy and learning role in areas including transportation efficiency, sustainable development and consumer rights.

Important Links	
WilderHill New Energy Global Innovation Index (NEX)	http://www.nexindex.com
Solactive (Calculation Agent) - Profile for the NEX Index	https://www.solactive.com/?s=wilderhill&index=US96811Y1029
Solactive (Calculation Agent) - Index Composition page	https://www.solactive.com/?s=NEX&indexmembers=US96811Y1029

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and is replaced as follows:

WilderHill New Energy Finance LLC

The WilderHill New Energy Global Innovation Index is published by WilderHill New Energy Finance LLC.

Important Links	
WilderHill New Energy Global Innovation Index (NEX)	http://www.wildershares.com
Solactive (Calculation Agent) - Profile for the NEX Index	https://www.solactive.com/?s=wilderhill&index=US96811Y1029

The rationale behind the changes are the following:

This modified equal weighting methodology allows for components at the rebalance generally to be all equally weighted; with respective sector weightings to be made in accordance with number of components assigned to each NEX sector, components and sectors adjusted if necessary as determined by Index Provider and reviewed each quarter. This is altered so that subjective aspects of dividing sector components into 2 categories, large and small, is removed.

This change retains comparability, integrity and reverts to original Index methodology, which did not have large/small divisions in weightings. Additionally it allows for a clearer tabulation of sector weightings: rather than by external surveys of market capitalizations of companies that may be subjectively deemed active in new energy, it is based on number of components assigned in the NEX to each sector. This ensures more objectivity towards weightings of sectors at rebalance, to goals of an equal-weighting, and gives all parties more reliability on selections that take place.

Separately calculations of Index Tickers also in EUR, GBP, and JPY aren't necessary- and ended. Biographical Information is deleted since referencing individuals is unnecessary, and becomes outdated; and the Contact Information that directs inquiries to one email address is clearer.

WHNEF is of the opinion that the suggested methodology changes do not compromise the Index integrity and comparability. The changes were deemed material.

The Index guideline will be modified accordingly and changes will be effective on June 20, 2019; the new Index guideline will be available on this date.

Lastly, Historical Index Data (*ECO & *NEX) are Available for Download in XLS Format here:

Historical Data for ECO Index from Inception on August 16, 2004 through June 10, 2019:

See Download link for XLS at bottom of this page,

- [Historical Closing Prices for ECO Index from August 16, 2004 Inception to June 10, 2019](#)

<https://wildershares.com/about.php>

Historical Data for NEX Index from Inception, March 6, 2006 through June 10, 2019:

See Download link for .XLS on this page,

[Historical Closing Prices for NEX from March 6, 2006 Inception to June 10, 2019](#)

https://nexindex.com/about_nex.php

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