

# **GUIDE TO THE CLEANTECH INDEX™**

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### INDEX DESCRIPTION

The Cleantech Index™ (“Index”) is a modified equally weighted index that seeks to reflect the soaring global demand for clean technology-based solutions to the enormous environmental and resource scarcity challenges that confront our planet. Clean technology (“cleantech”) products are defined as knowledge-based products and services that add economic value by reducing cost, raising productivity and/or product performance **while** reducing resource consumption and their negative impact on the environment and public health. The Index is comprised of stocks (including ADS/ADRs) of publicly traded companies worldwide that are leaders in cleantech innovation and commercial deployment across a broad range of industry sectors: from providing alternative energy and energy efficiency to advanced materials, clean air & water, eco-friendly agriculture/nutrition, clean manufacturing, etc.

The Index Provider, Cleantech Indices, LLC considers a company to qualify as a “cleantech company” when the company derives at least 50% of its revenues or operating profits from cleantech businesses.

CLEANTECH INDUSTRY SEGMENTS FOR CLEANTECH INDEX

Cleantech Segment	Examples of Clean Technologies
<p><b>Energy-related</b></p>	<p><b>Power Generation:</b> Renewable, cleaner, and distributed energy generation and related equipment and services. Generation from solar, wind, geothermal, hydro/micro-hydro, tidal/wave/current power, clean waste-to-energy, biomass, combined heat/power, kinetic energy, etc. Equipment: generators, controls, power inverters, turbines, etc. Includes carbon sequestration for power generation.</p>
	<p><b>Energy Storage and Clean Fuels:</b> Rechargeable batteries and controls/chargers, fuel cells, flywheels, super-capacitors, etc. Bio-fuels, bio-digesters, and hydrogen generation. Other clean and 'cleaner' fuels including waste and fossil-fuel enhancements and their distribution &amp; storage infrastructure.</p>
	<p><b>Grid-level Energy Transmission and Controls:</b> Transmission infrastructure and controls hardware &amp; services for power. Grid-level networks for advanced metering, power quality monitoring and outage management; integrated electronic systems for the management of distributed power; demand aggregation &amp; response, and related software. Efficient grid management and related equipment.</p>
	<p><b>Local-level Energy Controls &amp; Efficiency:</b> Networks and systems that meter/control energy consumption, power quality, maximize energy-efficiency, and enable remote diagnostics and demand-response for individual facilities or multiple locations; energy service companies; sensors and diagnostic equipment. Energy-efficient stationary products: lighting, HVAC, appliances, motors, machinery, compressors, etc. and their related controls and components. Energy-efficient components such as semiconductors, microelectronics, connectors, controls, etc.</p>
<p><b>Transportation &amp; Logistics</b></p>	<p>Energy-efficient and less-polluting vehicles of all types and related components; Intelligent roads and transportation systems; Maglev trains, public transportation, telematics, logistics and navigation systems (e.g., RFID, GPS) and related services. Mass/public transportation, ride-sharing, automated toll/fee collection, traffic management, and road pricing systems. Transportation infrastructure maintenance technologies/services.</p>

<p><b>Agriculture, Nutrition, and Forestry</b></p>	<p>This sector arguably taxes the environment most - and the earth's rising population and changing climate exacerbate the problem. We foresee major demand growth for technologies that enable more efficient and eco-friendly farming, aqua-culture, and forestry. Examples: advanced production, irrigation, and information system technologies/services. Bio-generated nutrition, eco-friendly pesticides/veterinary products, crop/ plant development, precision agriculture, soil enhancers, animal health, food storage and preservation technologies, etc. Testing and homologation services and technologies. <i>Does not include organic/natural health foods per se.</i></p>
<p><b>Environmental Quality &amp; Safety</b></p>	<p>Air purification and pollution controls, indoor air quality, emissions sensors and analyzers. Remediation of contaminated land, soil, water and buildings. Bio-remediation. Environmental engineering, and advanced infrastructure design/build/manage services. Natural resource management services. Hazmat, chemical, and waste recycling, minimization, and destruction products/services. Environmental Health &amp; Safety products &amp; services. Meteorology and climatology systems &amp; services. Cleaning, sterilization, and irradiation systems, test &amp; inspections services.</p>
<p><b>Water</b></p>	<p>Water treatment, desalinization and purification products &amp; services, water infrastructure, sewage treatment, test/measurement and sub-metering systems, water conserving products and processes. Surface and groundwater management.</p>
<p><b>Industrial</b></p>	<p>Clean and efficient production equipment, sensors, and systems and services that minimize resource consumption (water, energy, materials) per unit of output, or raise product quality/performance and pollute less. Advanced analytic and diagnostic systems for materials and environmental testing, and filtration systems and membranes for production. Connectivity and control products and services (e.g., IoT, SaaS, etc.) that raise productivity, product quality and/or reduce waste or risk of harmful events. Software for the development, design, and simulation of products and production processes as well as those which measure lifecycle impact.</p>
<p><b>Advanced Materials</b></p>	<p>Bio-generated, biodegradable, or non-toxic materials; materials for photovoltaics, strong, lightweight composites; thermo-electric and thermal regulating fibers/materials; insulation, green building materials (and components e.g., insulation, flooring, wood composites) electro-chromic glass, advanced recycled materials (or those designed for recycling), process efficiency catalysts, sorbents, environmentally-benign chemicals, e.g., lubricants, solvents, coatings, cleaning agents, adhesives, fire-retardants, etc.</p>

## ELIGIBILITY CRITERIA FOR INDEX CONSTITUENTS

The Index includes shares (and securities) of leading cleantech companies worldwide. To be *eligible* for inclusion in the Index, constituent company stocks must have the following criteria:

- Have a three-month average market capitalization of at least \$150 million in freely traded ('floated') shares and total market capitalization of at least \$200 million.
- Have a least 50% of either sales or operating profits derived from cleantech businesses.
- Have passed the Index Provider's proprietary quantitative and qualitative screens.
- Maintain an average daily trading volume of at least \$200,000 during the prior three-month period – prior to determination date (exclusive of the five days during and after an initial public offering.
  - If the trading history is less than three months, then the trading history to date will be used – exclusive of the first five days after an initial exchange listing and any secondary share offering greater than 5% of the floated share count prior to the offering.
  - For companies with shares listed on multiple exchanges (excluding pink sheet and bulletin board listings), trading volume and capitalization on foreign exchanges may also be taken into consideration with regard to company capitalization, weighting, and liquidity requirements.

## Geographic Eligibility Criteria Markets and Equities

- The Index is open to companies from nearly every country<sup>1</sup> provided that the shares trade in an equity market that provides sufficient access to foreign investors. In practice, the aforementioned eligibility criteria and national or exchange restrictions on foreign investment eliminate more than 99.9% of the roughly 100,000 companies listed on stock markets worldwide. In addition, it is common for companies from countries with less liquid domestic stock exchanges to list, co-list, or dual list their shares on exchanges abroad that offer greater liquidity, and investor access. As such, the Index may include company shares that trade outside their domestic market.
- Exhibit 1 shows MSCI's current characterization of many of the world's national equity markets (that represent more than 95% of global equity market capitalization). As of April 2019, fifty of the Index companies were from markets currently classified by MSCI as "Developed" and just one company was from a market that MSCI classified as "Emerging". The Index provider expects that at least 80-90% of the Index companies will come from developed markets and the balance from "Emerging" markets for the foreseeable future. It should be noted, however, that MSCI's market characterizations have evolved over time and will likely continue to do so.

Exhibit 1

MSCI ACWI & FRONTIER MARKETS INDEX										
MSCI ACWI INDEX						MSCI EMERGING & FRONTIER MARKETS INDEX				
MSCI WORLD INDEX			MSCI EMERGING MARKETS INDEX			MSCI FRONTIER MARKETS INDEX				
DEVELOPED MARKETS			EMERGING MARKETS			FRONTIER MARKETS				
Americas	Europe & Middle East	Pacific	Americas	Europe, Middle East & Africa	Asia	Americas	Europe & CIS	Africa	Middle East	Asia
Canada United States	Austria Belgium Denmark Finland France Germany Ireland Israel Italy Netherlands Norway Portugal Spain Sweden Switzerland United Kingdom	Australia Hong Kong Japan New Zealand Singapore	Brazil Chile Colombia Mexico Peru	Czech Republic Egypt Greece Hungary Poland Qatar Russia South Africa Turkey United Arab Emirates	China India Indonesia Korea Malaysia Pakistan Philippines Taiwan Thailand	Argentina	Croatia Estonia Lithuania Kazakhstan Romania Serbia Slovenia	Kenya Mauritius Morocco Nigeria Tunisia WAEMU <sup>2</sup>	Bahrain Jordan Kuwait Lebanon Oman	Bangladesh Sri Lanka Vietnam
MSCI STANDALONE MARKET INDEXES <sup>1</sup>										
				Saudi Arabia		Jamaica Panama <sup>3</sup> Trinidad & Tobago	Bosnia Herzegovina Bulgaria Ukraine	Botswana Ghana Zimbabwe	Palestine	

- The probability that an Index company might come from any country outside these two categories is very small – and miniscule were the company were not to have its shares listed on an exchange in a developed market.
- Finer Screens

The Index seeks to track the world’s leading cleantech companies most reflective of the commercial growth and success of clean technology products and services. Moreover, the Index seeks those companies that not only can survive rapidly evolving, and often high-growth, markets, but also those that will lead this growth wave. As such, the Index has a strong focus on investment merit and is an elite group of companies from around the world. In addition to the aforementioned eligibility criteria, all companies must pass a numerous proprietary screens for Index inclusion. These screens include:

- 1) Profitability and earnings quality
- 2) Revenue growth and quality of growth
- 3) Quality of management and governance
- 4) Business strategy, sector leadership, competitive position
- 5) Intellectual property and innovation
- 6) Sector and geographic representation
- 7) Materiality of impact of products/services
- 8) Environmental performance or problems

- 9) Financial strength, legal issues, exchange listing status
- 10) Reliability of financial statements
- 11) Freedom from government interference at the company level
- 12) Industry economics

The Index Provider may at any time, and from time to time, change the number of issues comprising The Index by adding or deleting one or more constituents, or replace one or more Index constituents with one or more substitute stocks of its choice, if in the Index Provider's discretion, such addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the industry groups to which The Index relates.

#### **WEIGHTING METHODOLOGY**

The Index employs a modified, equal-weight strategy. The weight of each Index constituent stock is determined at the quarterly rebalancing as per the Index Provider's established set of proprietary formulae and rules.

Index stocks are grouped into several 'weighting' bands with stocks of "similar" capitalization. Within each band, stocks are weighted equally at the quarterly rebalance determination date. There are several situations when certain stocks are assigned lower weightings than other stocks of similar market capitalization would normally receive due to issues of liquidity and profitability. The Index Provider's weighting formulae assign lower weights to Index companies that have:

- yet to post positive annual operating profits, have
- low average daily dollar trading volumes,
- free float capitalizations below certain thresholds (e.g., less than \$400 million).

In general, the further a company is from achieving annual operating profits (as per analysts' consensus estimates<sup>2</sup>) the lower the weight it receives vis-à-vis profitable companies of similar capitalization and liquidity. Despite the aforementioned, pre-profitability companies in toto cannot account for more than 8% of the Index at rebalancing and are unlikely to reach 4%.

The Index Provider may, at its discretion, modify the Index weighting strategy in order to adapt to market changes such as liquidity, market capitalization, the availability of qualified companies, sector growth, growth in assets tracking the Index, etc.

## **QUARTERLY UPDATES TO THE INDEX & CALCULATION METHODOLOGY**

This Index rebalances quarterly - at end of each March, June, September, and December. These regularly scheduled changes to the Index composition take effect just after the close of trading on the penultimate trading day of each quarter, the 'Rebalance Date'. All the affected exchanges must be open for trading (regular or partial) on the Rebalance Date. If any of the aforementioned exchanges are closed on the quarter penultimate trading day of the quarter, then the rebalance date will occur on the last trading day of the quarter. If one (or more) of the exchanges is also closed the quarter's last trading day, then the rebalance date will shift to the first date *prior to* the quarter's penultimate trading day when all affected exchanges are open. This will prevent the rebalance from being delayed until the beginning of the next quarter by normally scheduled market closures. The revised Index constituents and weights will be announced at the close of trading at least five business days before the Rebalance Date. Six to eight business days prior to the Rebalance Date is the 'Determination Date' – the date that the Index Provider determines the revised Index constituents and weightings. The Index Provider will inform the calculation agent about the exact 'Determination Date'. A constituent company must meet the following rules for continued Index inclusion:

- Maintain an average 'floated' market capitalization of at least \$100 million for the 30 days prior to the determination date.
- Have a market capitalization of at least \$100 million on the determination date.
- Maintain 60-day average daily trading volume of at least \$200,000.
- Companies with market capitalizations between \$150 million and \$100 million will receive a lower weighting during a probation period after which its market capitalization must equal or surpass \$150 million or face deletion from the Index.
- Demonstrate that it still meets the Index Provider's quantitative and qualitative screens for Index inclusion.

In conjunction with the quarterly Index review and rebalancing, the constituent weights used in the calculation of the Index are updated and reset based upon constituent share prices as of the close of trading on the Determination Date.

Upon completion of the quarterly rebalancing, no individual stock may comprise more than 6% of the Index nor may the aggregate weight of all Index companies that have yet to achieve positive annual earnings exceed 8% of the overall Index (and most likely *far below* that ceiling).

## **INDEX MAINTENANCE**

The Index is rebalanced each March, June, September and December. The Index divisor was initially determined to yield a benchmark value of 500.00 at the close of trading December 31, 1999. The Index was created by and is a trademark of, Cleantech Indices LLC ("Index Provider"). Solactive AG (Solactive) serves as the calculation agent for the Index. The values of the Index



will be disseminated every 15 seconds between the hours of 8:00 and 22:50 CET-via the price marketing service of Boerse Stuttgart AG and distributed to all affiliated vendors under the Index Reuters Instrument Codes (RICs) .CTIUS (price) and .CTIISTR (total return). The information will also be available the under the Boerse Stuttgart tickers DE000SLA48L0.SG (price) and DE000SLA48M8.SG (total return) on both the Boerse Stuttgart website as well as that of Solactive AG <https://www.solactive.com/?s=cleantech+index> www.

In the event of a merger between two constituents, the share weight of the surviving entity may be adjusted to account for any shares issued in the acquisition. The Index Provider may substitute constituents or change the number of issues included in the index, based on changing conditions in the industry or in the event of certain types of corporate actions, including mergers, acquisitions, spin-offs, and reorganizations. In the event of constituent or share weight changes to the Index portfolio, the payment of dividends other than ordinary cash dividends, spin-offs, rights offerings, re-capitalization, or other corporate actions affecting a constituent of the Index; the Index divisor may be adjusted to ensure that there are no changes to the Index level as a result of non-market forces.

In rare circumstances, the Index provider may elect to remove a company from the Index outside of the quarterly rebalance in response to an unexpected, extraordinary event such as an abrupt company delisting, major malfeasance, misfeasance, or nonfeasance by company directors, or other severe events. In such an instance, the Index provider will confer with Solactive who will then announce the removal and its timing as soon as possible via the daily email file. When an Index company leaves the Index outside of the quarterly rebalance, the weighting of the departed company is reallocated proportionately among the remaining Index constituents at market close on the date of removal. Such extraordinary changes will be announced by Solactive via email.

#### **DISSEMINATION OF INDEX INFORMATION**

All changes to Index composition, are reported in Solactive's regular daily file emails – this includes, the quarterly rebalance, company actions (e.g., a spinoff or return of capital, a constituent company being acquired, as well as extraordinary events).

On the 'Determination Date' (between six and eight business days prior the Rebalance Date), the Index Provider delivers the revised index constituents and their weightings to Solactive AG (Solactive). Whenever practical, in conjunction with the Index Provider, Solactive will announce constituent company additions/deletions and weighting changes at least five trading days before making such changes effective via broadcast email

Rebalance Schedule Example  
*- Third Quarter 2019*

1. June 18, 19, 20 – (Determination Date) Index constituents and their weightings are determined by the Index Provider. Index constituent additions and deletions are determined. The new Index composition is sent to Solactive.
2. June 21 – after North American markets close trading 16:30 Eastern Time (GMT-5), the new index composition for the third quarter is disseminated by Solactive as listed on the Stuttgart Börse.
3. June 27 (Rebalance Date) – The rebalance occurs after the close of trading, on the next-to-last trading day of the quarter - June 27 - so that the rebalance becomes effective before markets open on June 28 (the last trading day of the month).<sup>3</sup> Index composition and weightings will also reflect any changes that have occurred since the determination date.

**INDEX PROVIDER AND MANAGER**

**RAFAEL COVEN**

Cleantech Indices' Managing Director, Rafael Coven has managed the Index since early 2007. He has extensive cleantech industry and institutional investor experience. He has worked in cleantech for over 30 years as a manager, entrepreneur, equity investor, and management consultant. He has global experience working with, or consulting to, such leading cleantech firms as Abengoa, Dynatech, Philips Lighting, Siemens, and numerous private equity and venture capital investors in the sector. During the 1990s, he was an international equity analyst at Dietche & Field Advisers where, as part of the portfolio management team, he managed a \$700 million portion of the firm's \$5.6 billion equity holdings (including many cleantech companies). He earned a B.A in Developmental Economics from the University of Michigan and an MBA from Northwestern University's Kellogg School.

ENDNOTES

**NB.** *All monetary figures in this document are in U.S. Dollars - denoted by the symbol “\$”.*

- 1) Except for the handful of cases where the United States Treasury Department prohibits investment in specific foreign companies or companies from sanctioned countries (examples, as March 2019, would include North Korea, Iran, Cuba, Sudan, etc.) regardless of the location where the shares trade [Click here to access the US Treasury Department’s list of restrictions](#).
- 2) The primary determinant of time to profitability is consensus analyst estimates available via Thomson Financial News Network just prior to the Determination Date). Other sources may be used when Thomson FNN analyst forecasts are unavailable, of questionable accuracy or timeliness, or too limited in quantity.
- 3) This example assumes that all the concerned equity markets are open on the June 27, 2019. If, in fact, one or more of the exchanges is closed on June 27, then the rebalance date will be determined by the rules outlines in