

China CleanTech Index

2016 Annual Performance Report

JANUARY 2017

Published internationally by:



Published in China by:



Published in Australia by:



Produced by:



To request further information or to be added to the distribution list for future China CleanTech Index reports, please see www.sinocleantech.com

or contact contact@sinocleantech.com

The Definitive Measure of Chinese Cleantech Industry Performance

Table of Contents

1. China CleanTech Index Overview	3
2. China CleanTech Index Performance	5
3. Component Sub-indices	9
4. Index Component Companies	11
5. Index Profile	12



Disclaimer

Whilst Australian CleanTech Pty Ltd provides this report with the skill, diligence and care normally exercised by qualified persons in the performance of comparable work, Australian CleanTech is not be liable to and does not indemnify any party that may rely on the content of the report, against any action, suit, claim, demand, loss, cost or expense whatsoever arising out of or referable to this document. By accepting this report, the reader, their organisations and any associated bodies corporate release Australian CleanTech from liability of any kind whatsoever arising out of or referable to this report.

In addition, nothing herein is intended to be nor should be construed as investment advice. Australian CleanTech does not recommend that any financial product should be bought, sold or held by you, and nothing in this document should be construed as an offer, nor the solicitation of an offer, to buy or sell securities by Australian CleanTech. You should not make any investment decision without consulting a fully qualified financial adviser.

1. China CleanTech Index Overview

The China CleanTech Index provides the definitive measure of the performance of Chinese cleantech companies that are listed on stock exchanges around the world.

The combined investment themes of China and environment provide a compelling case for investment. The sector remains volatile as it matures and reacts to environmental and industry development policy shifts. The quality and scale of the companies included in the sector varies widely and strong research into both sub-sectors and companies is essential before committing to the sector. However, the cleantech sector in China presents a very strong medium term investment thesis and the China CleanTech Index provides the first level of data to enable informed investment decisions to be made.

The cleantech industry is split into a number of sub-sectors as detailed in the table below. Each of the sub-sectors contains companies that have both environmental and economic benefits.

Biogas	Geothermal – Hot dry rocks and conventional
Biofuels	Low Emissions Transport Technologies
Carbon Trading	Solar Thermal and Photovoltaics
Energy Efficiency & Biomaterials	Waste Management & Recycling
Energy Storage & Fuel Cells	Water
Environmental Services	Wave, Tidal & Hydro
Green Buildings	Wind Generation

The cleantech sector is fundamentally different to Socially Responsible Investments (SRI) or Environmental, Social and Governance (ESG) performance. SRI and ESG look at incremental improvements in company performance and can be seen as ‘operational hygiene’ measures that find the ‘best in class’. Cleantech focuses on companies whose output positively enhances the communities and ecologies in which they reside. It is about doing ‘more good’ rather than ‘less bad’.

With over 160 companies falling under the coverage of the Index and with a combined market capitalisation of two trillion Renminbi (US\$306 billion), the China CleanTech Index presents for the first time a picture of the Chinese cleantech industry’s growth in a single measure.

The Index is weighted by market capitalisation and is benchmarked against the following indices to show its relative performance:

- **Wilder Hill New Energy Global Innovation Index (NEX)** – which measures the performance of global clean energy stocks
- **Cleantech Index (CTIUS)** – which measures the performance of global cleantech stocks

- **China Shanghai Composite Index (SHCOMP)** – which measures the performance of stocks listed in Shanghai.
- **MSCI World (MSCI)** – which provides a measure of the performance of global stock markets.

The rules for the formulation and management of the Index have been developed with reference to global best practice.

The China Cleantech Index is updated each month and published on the SinoCleantech website at www.sinocleantech.com and on the Australian CleanTech website at www.auscleantech.com.au. It is published internationally in conjunction with Cleantech Investor (www.cleantechinvestor.com) and in China in conjunction with Top Capital (www.topcapital.cn).

Monthly results can be emailed directly to interested parties by subscribing at www.sinocleantech.com.

Differences to the other Low Carbon Indices in China

There are other stock market indices that track the performance of some of China's cleantech stocks. However, none of these is as comprehensive as the China CleanTech Index for the following reasons:

- All cleantech companies that have headquarters in Mainland China, Hong Kong and Taiwan are included in the China CleanTech Index, which provides much wider coverage than other indices.
- There is no lower limit to market capitalization for inclusion in the China CleanTech Index meaning that all cleantech companies are included. The China CleanTech 20 gives a measure of the performance of the large cap stocks in the sector.
- The China CleanTech Index excludes nuclear, clean coal and natural gas, which are not considered to be 'cleantech'.
- The China CleanTech Index includes biofuels, green buildings, biomaterials, carbon trading, geothermal and environmental services, all of which appear to be missing from other indices.
- The China CleanTech Index is rebalanced quarterly whereas other indices are generally only rebalanced annually.

2. China CleanTech Index Performance

The China CleanTech Index underperformed all of its four benchmarks for the month of December 2016 and recorded a loss of 5.2%.

The China CleanTech Index fell from 49.94 to 47.36 over the month of December recording a 5.2% loss. This compared to the NEX gain of 1.8%, the CTIUS gain of 1.7%, the Shanghai Composite loss of 4.5% and the MSCI gain of 2.3%. The China CleanTech 20 recorded a loss of 5.1% over the month.

Over the final quarter of 2016, the China CleanTech Index recorded a loss of 1.4%, underperforming all but one of its benchmark indices. Over the quarter, the NEX lost 5.0%, the CTIUS fell 0.4%, the Shanghai Composite gained 3.3% and the MSCI gained 1.5%.

For the 2016 calendar year, the China CleanTech Index also underperformed all of its benchmarks. For the full year, the China CleanTech Index recorded a loss of 19.1%, compared to the NEX loss of 8.3%, the CTIUS gain of 12.0%, the Shanghai Composite loss of 12.3% and the MSCI gain of 5.3%.

The twelve-month loss is being driven by the China Water Index (-27.6%) and the China Storage Index (-25.9%).

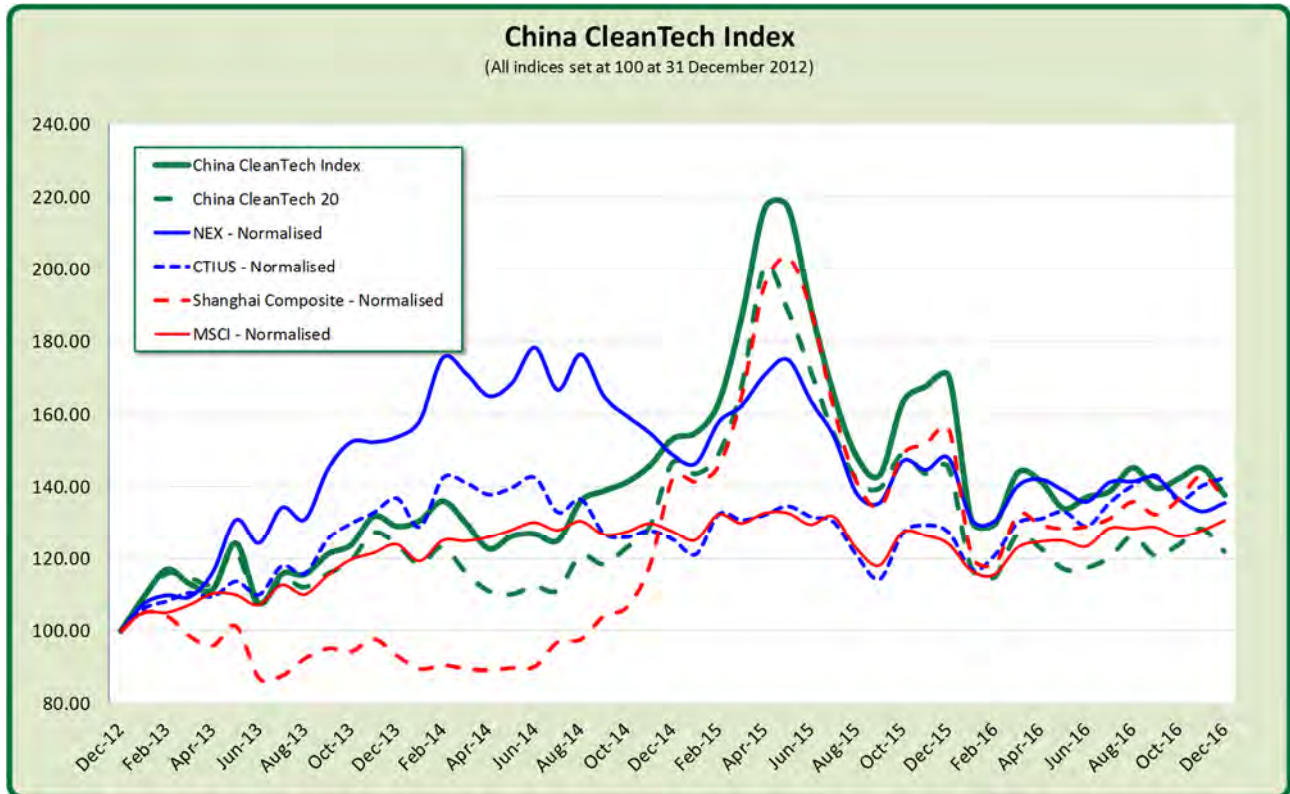
	2013	2014	2015	DEC 2016	4Q16	2H16	2016	3 Years
China CleanTech Index (CCTI)	29.2%	18.8%	11.1%	-5.2%	-1.4%	0.4%	-19.1%	6.7%
China CleanTech 20 (CCT20)	24.1%	18.2%	-0.9%	-5.1%	0.9%	3.8%	-16.2%	-1.8%
Wilder Hill New Energy Global Innovation Index (NEX)	53.7%	-3.2%	-0.6%	1.8%	-5.0%	-0.2%	-8.3%	-11.8%
Cleantech Index (CTIUS)	37.0%	-8.4%	1.6%	1.7%	-0.4%	10.5%	12.0%	4.2%
China Shanghai Composite Index (SHCOMP)	-6.7%	52.8%	9.4%	-4.5%	3.3%	5.9%	-12.3%	46.6%
MSCI World (MSCI)	24.1%	2.9%	-2.7%	2.3%	1.5%	5.9%	5.3%	5.4%

The market capitalisation of the 162 stocks in the China CleanTech Index after its rebalance is RMB 1.99 trillion (US\$306 billion). This is close to the all time high of RMB 2.3 trillion set in June 2015 and a long way up from the Index's trough of RMB 604 billion in November 2012.

Best and Worst Stocks

The best and worst performers in terms of share price performance are shown in the table below. Over the month, 13 companies recorded share price losses of more than 15% and 6 companies made gains of more than 15%. Over the quarter, 12 companies recorded share price losses of more than 20% and 5 companies made gains of more than 20%. Over 2016, 15 companies recorded share price losses of more than 60% and 5 companies made gains of more than 60%.

December 2016	
Best Performers Share Price Gain > 15%	Worst Performers Share Price Loss > 15%
China Clean Energy Inc. Guangzhou Zhiguang Electric China Solar & Clean Energy Solns., Inc. Henan Xindaxin Materials Co., Ltd. Sino-American Silicon Products Fujian Mindong Electric Power Limited Co	Guangzhou Hongli Opto Electronic Co Ltd Ledman Optoelectronic Co Ltd Shenzhen AOTO Electronics Co Ltd Xiamen Savings Environmental Co., Ltd. Shunfeng Photovoltaic International Yingli Green Energy Beijing Easpring Material Technology Co., Ltd. China Sun Group High Tech Co. Coslight Technology International Group CT Environmental Group Ltd Guangxi Guidong Electric Heilongjiang Interchina Water Treatment Co Ltd Sinovel Wind Group Company Limited
Fourth Quarter 2016	
Best Performers Share Price Gain > 20%	Worst Performers Share Price Loss > 20%
China Clean Energy Inc. China Solar & Clean Energy Solns., Inc. Henan Xindaxin Materials Co., Ltd. Fujian Mindong Electric Power Limited Co China Renewable Energy Investment Ltd	Guangzhou Hongli Opto Electronic Co Ltd Hanwha Q Cells (HQCL) ReneSola Ltd. (ADR) Shunfeng Photovoltaic International Yingli Green Energy Beijing Easpring Material Technology Co., Ltd. China BAK Battery China Sun Group High Tech Co. Coslight Technology International Group China Industrial Waste Management Inc CT Environmental Group Ltd Guangxi Guidong Electric
Full Year 2016	
Best Performers Share Price Gain > 60%	Worst Performers Share Price Loss > 60%
RINO International Corporation China Solar & Clean Energy Solns., Inc. China Industrial Waste Management Inc China Recycling Energy Corp. China Power New Energy Development Co., Ltd	SmartHeat Inc Bodisen Biotech, Inc. Hunan Yonker Environ Protection Co Ltd Shenzhen Das Intellitech Co., Ltd. Hanwha Q Cells (HQCL) Jiangsu Akcome Solar Science and Technology Co LDK Solar (LDKYQ) ReneSola Ltd. (ADR) Shunfeng Photovoltaic International Sungrow Power Supply Co China Sun Group High Tech Co. Sichuan Tianqi Lithium Industries, Inc. Unilumin Group Co Ltd Beijing Originwater Technology Co., Ltd. Sanchuan Wisdom Technology Co Ltd



Index Rebalance

The China CleanTech Index underwent its quarterly rebalancing at the end of December which took account of recent share issues and other corporate activity. Two companies were removed from and two new companies added to the Index after ongoing research into the Chinese cleantech sector.

The removed companies were China Ritar Power Company (OTCMKTS:CRTP) and Novarise Renewable Resources Limited (ASX:NOE) both of which have been suspended from trading for lengthy periods and seem to have no prospect of relisting.

The following new companies added to the Index were both attended and were reviewed at the Zhenjiang Low Carbon Tech Expo in December 2016:

Nanjing Xinlian Electronics Co Ltd (SHE:002546)

Nanjing Xinlian Electronics Co., Ltd. is a China-based company principally engaged in the research, development, manufacture, distribution and services of software and hardware of power consuming information collection systems. The Company provides series products and solutions for electric power industry, including main station software, 230M wireless network, terminal equipment and electric power measuring equipment. The Company's products portfolio consists of main station systems, terminals for 230M specialty network, public network terminals, collectors, instruments

and equipment, as well as carrier communication testing equipment, among others. It distributes its products primarily in domestic market. The Company will also be added to the China Efficiency Index.

Guangzhou Devotion Thermal Tech Co Ltd (SHE:300335)

Guangzhou Devotion Thermal Technology Co Ltd is principally engaged in the provision of energy solutions by using biomass fuels, natural gas, clean coal and other new clean energy. The Company mainly provides fuels, including biomass molding fuels (BMFs), bio-oil fuels (BOFs) and biomass gas fuels (BGFs), as well as thermal power. The Company mainly provides services for paper making, steel, construction materials, textile, pharmaceutical chemical, food, beverage and other industries.

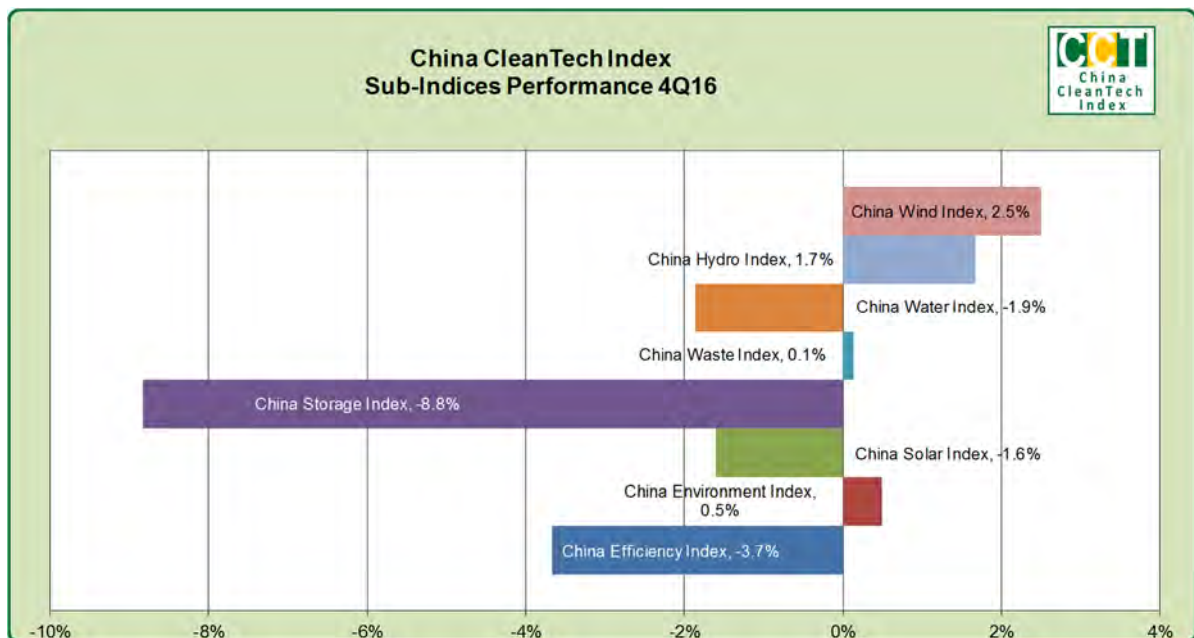
3. Component Sub-Indices

To provide an analysis of the China CleanTech Index, eight sub-indices have been developed. The performance of each of these sub-indices over the last five years and the current quarter are shown in the table and charts below.

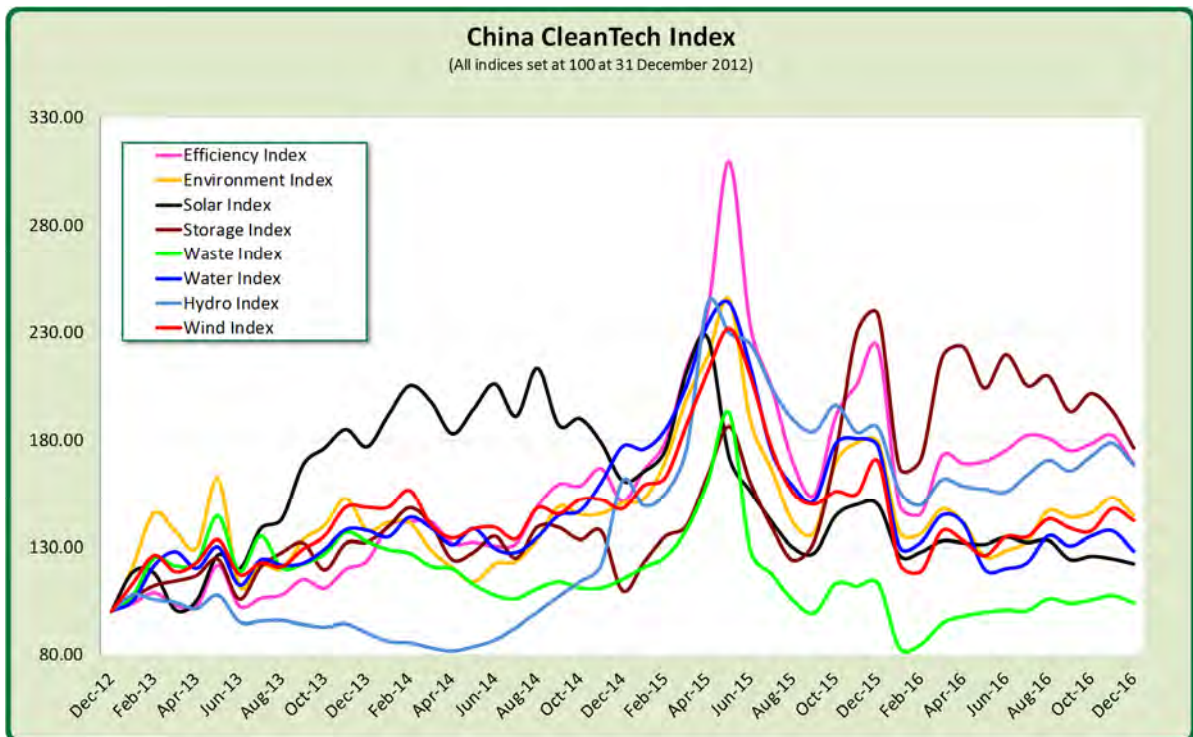
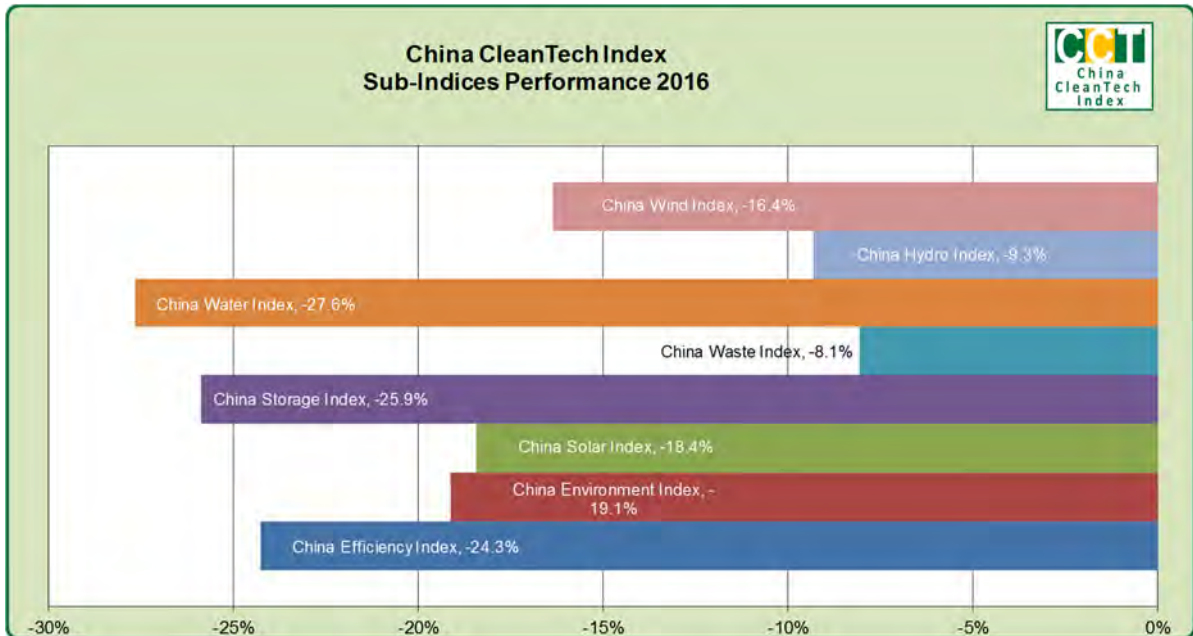
China CleanTech Sub-Indices

	2012	2013	2014	2015	4Q16	2016
China Efficiency Index	-30.9%	23.5%	22.6%	47.1%	-3.7%	-24.3%
China Environment Index	-21.8%	37.7%	9.3%	18.7%	0.5%	-19.1%
China Solar Index	-36.2%	76.9%	-9.0%	-7.0%	-1.6%	-18.4%
China Storage Index	11.7%	32.2%	-17.2%	117.5%	-8.8%	-25.9%
China Waste Index	-12.5%	32.5%	-13.2%	-1.8%	0.1%	-8.1%
China Water Index	-8.0%	37.6%	28.7%	-0.2%	-1.9%	-27.6%
China Hydro Index	1.1%	-9.9%	78.9%	15.2%	1.7%	-9.3%
China Wind Index	-32.5%	48.5%	-0.3%	14.9%	2.5%	-16.4%

Four of the eight sub-indices recorded gains for the quarter. The best results were the 2.5% gain for the China Wind Index and the 1.7% gain for the China Hydro Index. The worst results were recorded by the 8.8% loss from the China Storage Index and 3.7% loss from the China Efficiency Index.



Over 2016, all of the sub-indices recorded losses. The best results were the 8.1% loss for the China Waste Index and the 9.3% loss for the China Hydro Index. The worst results were recorded by the 27.6% loss from the China Water Index and 25.9% loss from the China Storage Index.



4. Index Component Companies

The 20 largest Index constituents by market capitalisation on 31 December 2016 are provided in the table below. These stocks will be the constituents of the China CleanTech 20 until the Index rebalance on 31 March 2017.

In the China CleanTech 20, the greatest sub-sector representations are Water with six companies followed by Wind with three companies.

New entrants to this list at this rebalance are Shenwu Environmental Technology, Jiangxi Ganfeng Lithium and Beijing Capital. These have taken the place of Wuhan Linuo Solar Energy Group, Chengdu Xingrong Investment and Beijing New Building Materials.

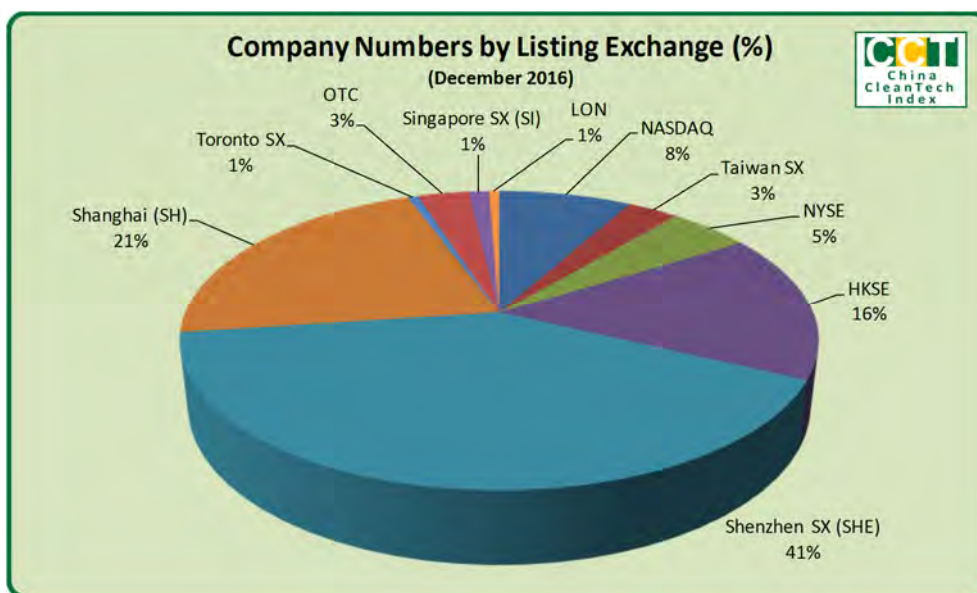
	Company	Sector	Exchange	Code
1	China Yangtze Power	HYDRO	Shanghai (SH)	600900.SS
2	Hanergy Thin Film Power Group	SOLAR	HKSE	0566.HK
3	Power Construction Corporation of China,	HYDRO	Shanghai (SH)	601669.SS
4	Beijing SJ Environmental Protection and New Material	ENVIRONMENTAL SERVICES	Shenzhen SX (SHE)	300072.SZ
5	Beijing Originwater Technology	WATER	Shenzhen SX (SHE)	300070.SZ
6	Xinjiang Goldwind Science & Technology	WIND	Shenzhen SX (SHE)	002202.SZ
7	China Longyuan Power Group	WIND	HKSE	0916.HK
8	Tsinghua Tongfang	ENERGY EFFICIENCY & BIOMATERIALS	Shanghai (SH)	600100.SS
9	Beijing Enterprises Water Group	WATER	HKSE	0371.HK
10	Chongqing Water Group	WATER	Shanghai (SH)	601158.SS
11	China Everbright International	WATER	HKSE	0257.HK
12	Sichuan Tianqi Lithium Industries	STORAGE & FUEL CELLS	Shenzhen SX (SHE)	002466.SZ
13	Sound Environmental Resources	WASTE	Shenzhen SX (SHE)	000826.SZ
14	GCL System Integration Technology	SOLAR	Shenzhen SX (SHE)	002506.SZ
15	Shenwu Environmental Technology	ENERGY EFFICIENCY & BIOMATERIALS	Shenzhen SX (SHE)	300156.SZ
16	Huaneng Renewables	WIND	HKSE	0958.HK
17	Guangdong Golden Dragon Development	WATER	Shenzhen SX (SHE)	000712.SZ
18	Jiangxi Ganfeng Lithium	STORAGE & FUEL CELLS	Shenzhen SX (SHE)	002460.SZ
19	Beijing Capital	WATER	Shanghai (SH)	600008.SS
20	Beijing SPC Environment Protection Tech	ENVIRONMENTAL SERVICES	Shenzhen SX (SHE)	002573.SZ

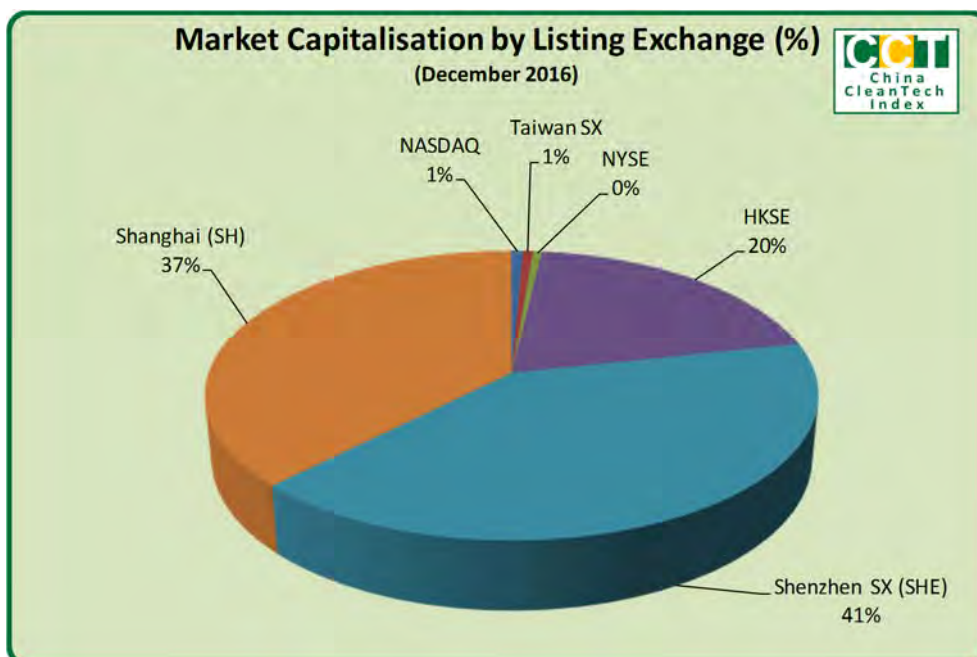
5. Index Profile

The profile of the constituent companies that comprise the China CleanTech Index provides some context for its performance. The 162 constituent companies are listed on ten different exchanges, although 78% of them are listed on the exchanges in Shanghai, Shenzhen and Hong Kong. There are a further 17% listed on exchanges in North America.

When considering the total market capitalisation on each exchange, the figures show an increased focus on the Chinese exchanges. With only 22% of the companies, the Shanghai Exchange holds 37% of the Index’s total market capitalisation. Combined with Shenzhen and Hong Kong, these three exchanges hold 98% of the total market capitalisation.

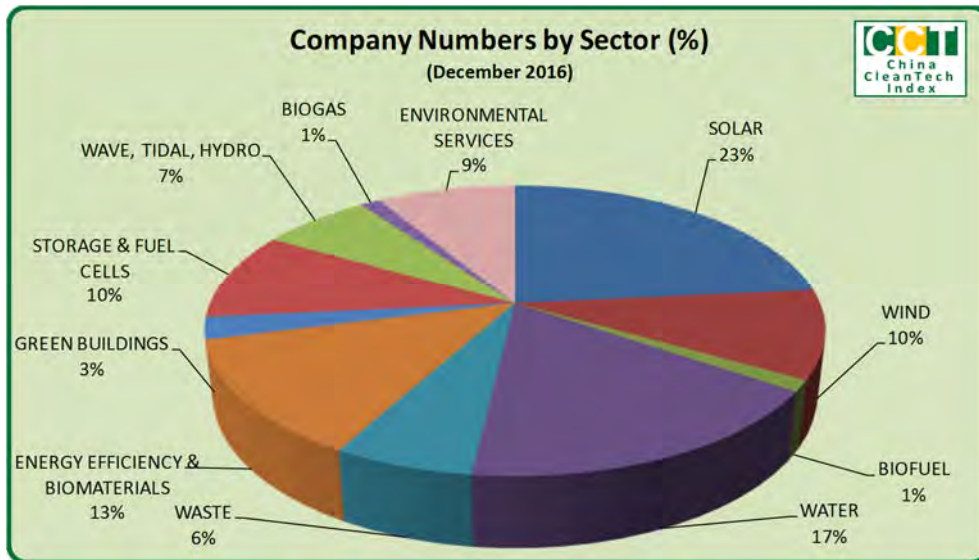
Listing Market	Number of Companies	Market Capitalisation (RMB million) December 2016
NASDAQ	13	¥ 13,415
Taiwan SX	5	¥ 12,316
NYSE	8	¥ 10,854
HKSE	26	¥ 392,789
Shenzhen SX (SHE)	66	¥ 811,522
Shanghai (SH)	35	¥ 745,959
Toronto SX	1	¥ 29
OTC	5	¥ 7
Singapore SX (SI)	2	¥ 813
LON	1	¥ 0.3
TOTAL	162	¥ 1,987,704



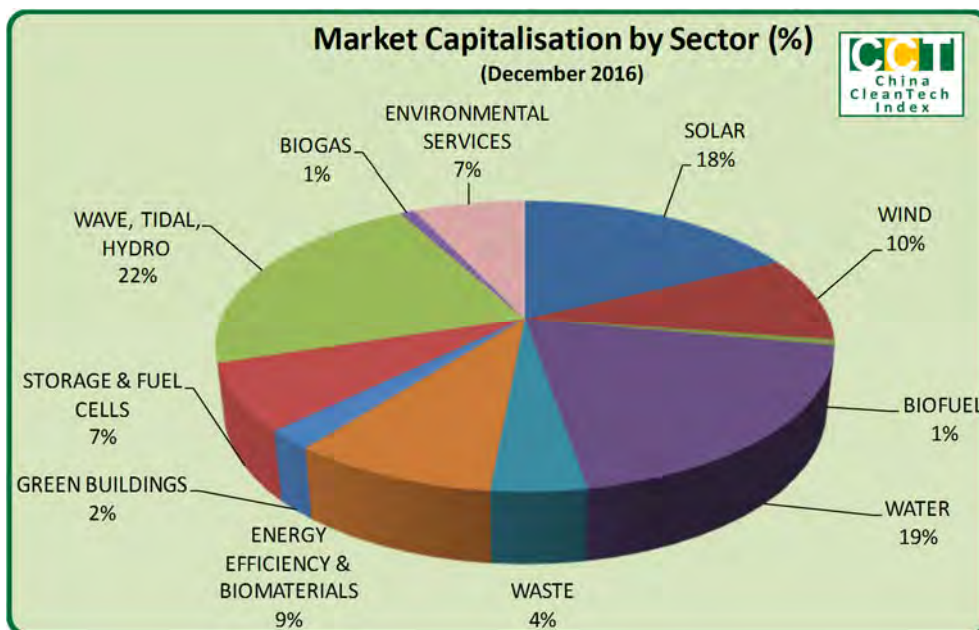


When considering the various sub-sectors present in the China CleanTech Index, the company numbers are led by Solar (23.5%) followed by Water (17.3%) and Energy Efficiency (13.0%).

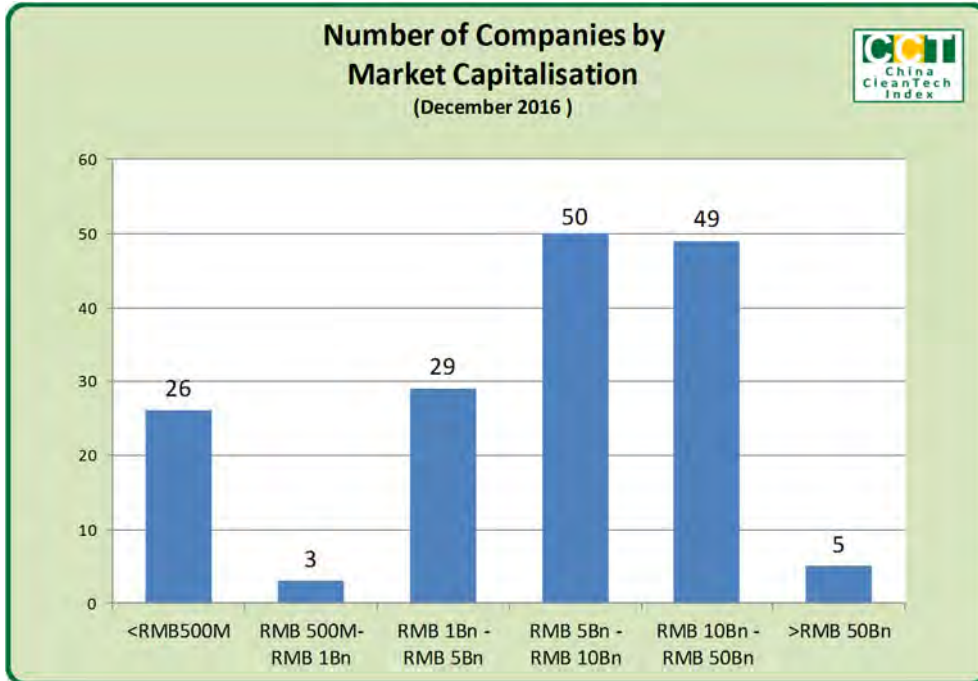
Sector	Number of Companies	Market Capitalisation (RMB million) December 2016
SOLAR	38	¥ 353,615
WATER	28	¥ 384,553
ENERGY EFFICIENCY & BIOMATERIALS	21	¥ 180,407
STORAGE & FUEL CELLS	16	¥ 148,081
WIND	16	¥ 189,336
ENVIRONMENTAL SERVICES	14	¥ 139,442
HYDRO	11	¥ 435,450
WASTE	10	¥ 83,000
GREEN BUILDINGS	4	¥ 42,770
BIOFUEL	2	¥ 12,963
BIOGAS	2	¥ 18,086
TOTAL	162	¥ 1,987,704



The market capitalisation of the sub-sectors shows that Hydro (21.9%), Water (19.3%) and Solar (17.8%) and are the largest groups. The performance of these larger sub-sectors therefore impacts the overall Index performance to a greater extent than the smaller sub-sectors.



An analysis has also been completed on the sizes of companies that are included in the Index in terms of ranges of market capitalisation. As shown in the chart below, the largest number of companies (50, 31%) are in the market capitalisation range of RMB 5 billion to RMB 10 billion.



It is interesting to compare this final chart with those published for the market capitalisation spread for the Index over the previous four years. In general, there has been a steady growth in company sizes as additional companies have been brought under coverage of the Index and the growth in the sector drives company valuations to increase. However, the Index falls of 2016 have seen a slight movement of company numbers into smaller market capitalization categories.

