

# China CleanTech Index

## 2017 Annual Performance Report

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The Definitive Measure of Chinese Cleantech Industry Performance

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## 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 150 companies falling under the coverage of the Index and with a combined market capitalisation of two trillion Renminbi (US\$320 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](http://www.sinocleantech.com) and on the Australian CleanTech website at [www.auscleantech.com.au](http://www.auscleantech.com.au). It is published internationally in conjunction with Cleantech Investor ([www.cleantechinvestor.com](http://www.cleantechinvestor.com)) and in China in conjunction with Top Capital ([www.topcapital.cn](http://www.topcapital.cn)).

Monthly results can be emailed directly to interested parties by subscribing at [www.sinocleantech.com](http://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 2017 and recorded a loss of 0.3%.

The China CleanTech Index fell from 48.44 to 48.30 over the month of December recording a 0.3% loss. This compared to the NEX gain of 2.0%, the CTIUS gain of 0.7%, the Shanghai Composite gain of 1.6% and the MSCI gain of 1.3%. The China CleanTech 20 recorded a loss of 0.9% over the month.

Over the final quarter of 2017, the China CleanTech Index recorded a loss of 2.6%, also underperforming all of its benchmark indices. Over the quarter, the NEX gained 3.5%, the CTIUS gained 3.0%, the Shanghai Composite gained 0.7% and the MSCI gained 5.1%.

For the 2017 calendar year, the China CleanTech Index gained 2.0%, compared to the NEX gain of 25.5%, the CTIUS gain of 29.4%, the Shanghai Composite gain of 8.6% and the MSCI gain of 20.1%.

The twelve-month result was led by the China Storage Index and its gain of 19.6% with the worst sector result recorded by the 17.4% loss from the China Efficiency Index.

	2014	2015	2016	DEC 2017	4Q17	2H17	2017	3 Years
China CleanTech Index (CCTI)	18.8%	11.1%	-19.1%	-0.3%	-2.6%	-0.8%	2.0%	-3.7%
China CleanTech 20 (CCT20)	18.2%	-0.9%	-16.2%	-0.9%	-0.5%	-0.4%	8.6%	2.6%
Wilder Hill New Energy Global Innovation Index (NEX)	-3.2%	-0.6%	-8.3%	2.0%	3.5%	11.2%	25.5%	9.9%
Cleantech Index (CTIUS)	-8.4%	1.6%	12.0%	0.7%	3.0%	10.4%	29.4%	44.5%
China Shanghai Composite Index (SHCOMP)	52.8%	9.4%	-12.3%	1.6%	0.7%	5.6%	8.6%	25.7%
MSCI World (MSCI)	2.9%	-2.7%	5.3%	1.3%	5.1%	9.8%	20.1%	20.9%

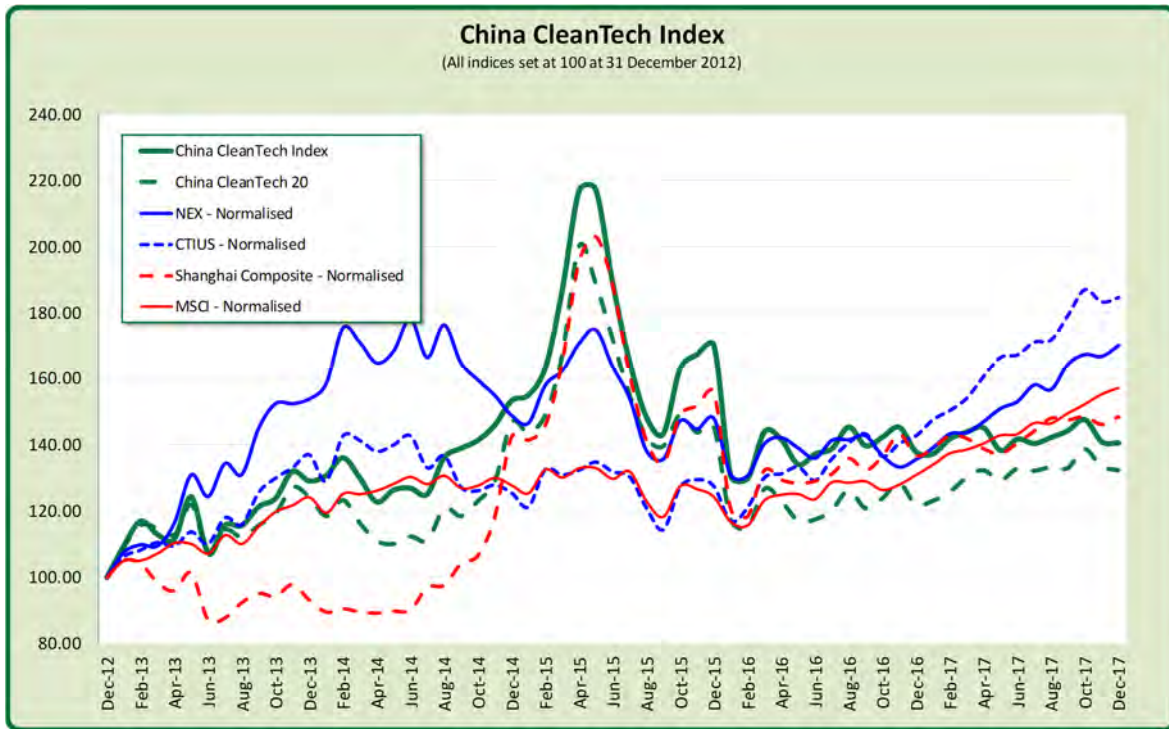
The market capitalisation of the 157 stocks in the China CleanTech Index after its rebalance is RMB 2.11 trillion (US\$324 billion). This is close to the all time high of RMB 2.3 trillion set in June 2015 and a long way up from the Index's trough of RMB 604 billion in November 2012.

### Best and Worst Stocks

The best and worst performers in terms of share price performance are shown in the table below.

Over the month, 10 companies recorded share price gains of more than 15% and 7 companies made losses of more than 15%. Over the quarter, 12 companies recorded share price gains of more than 30% and 4 companies made losses of more than 30%. Over 2017, 13 companies recorded share price gains of more than 60% and 5 companies made losses of more than 60%.

December 2017	
Best Performers Share Price Gain > 15%	Worst Performers Share Price Loss > 15%
Hanwei Energy Services China Singyes Solar Tech Chaowei Power Holdings China Sun Group High Tech Tianneng Power International C&G Environmental Protection Holdings China Industrial Waste Management Cleantech Solutions International Titan Wind Energy (Suzhou) Xinjiang Goldwind	China Clean Energy SmartHeat RINO International Corporation China Sunergy ReneSola Yingli Green Energy Sanchuan Wisdom Technology
Fourth Quarter 2017	
Best Performers Share Price Gain > 20%	Worst Performers Share Price Loss > 20%
Hanwei Energy Services Shenzhen Refond Optoelectronics Beijing New Building Materials China Solar & Clean Energy Solns Daqo New Energy GCL-Poly Energy C&G Environmental Protection China Industrial Waste Management China Recycling Energy. Cleantech Solutions International Titan Wind Energy (Suzhou) Xinjiang Goldwind	China Energy Recovery Leader Environmental Technologies RINO International China Sun Group High Tech
Full Year 2017	
Best Performers Share Price Gain > 60%	Worst Performers Share Price Loss > 60%
HC Semitek Beijing New Building Materials Daqo New Energy ReneSola Sino-American Silicon Products Solargiga Energy Sungrow Power Supply China Sun Group High Tech Jiangxi Ganfeng Lithium Sichuan Tianqi Lithium Industries. China Industrial Waste Management China Recycling Energy Cleantech Solutions International	Guangzhou Zhiguang Electric RINO International China Sunergy C&G Environmental Protection Gansu DAYU Water-saving Group



### 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. Four companies were removed from the Index. These were Bodisen Biotech (BBCZ) which was delisted in 2017 and Suntech Power Holdings (STPFQ), Advanced Battery Technologies (ABAT.PK) and China Metal Recycling (Holdings) Ltd (0773.HK) all of which have been suspended from trading since 2015.

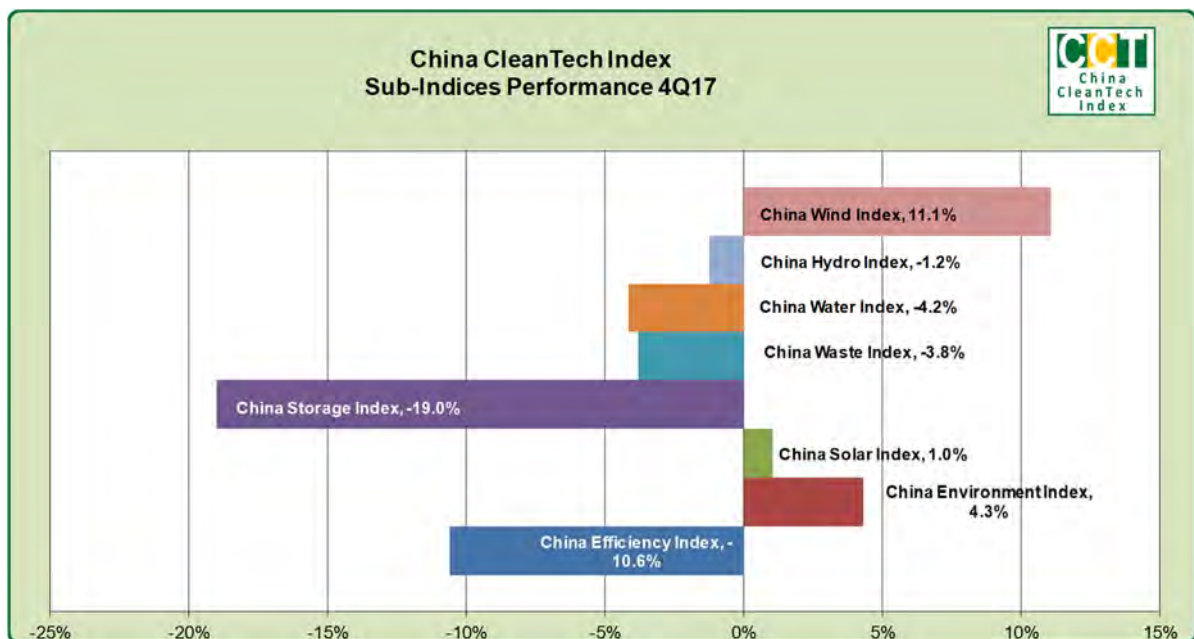
### 3. Component Sub-Indices

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**

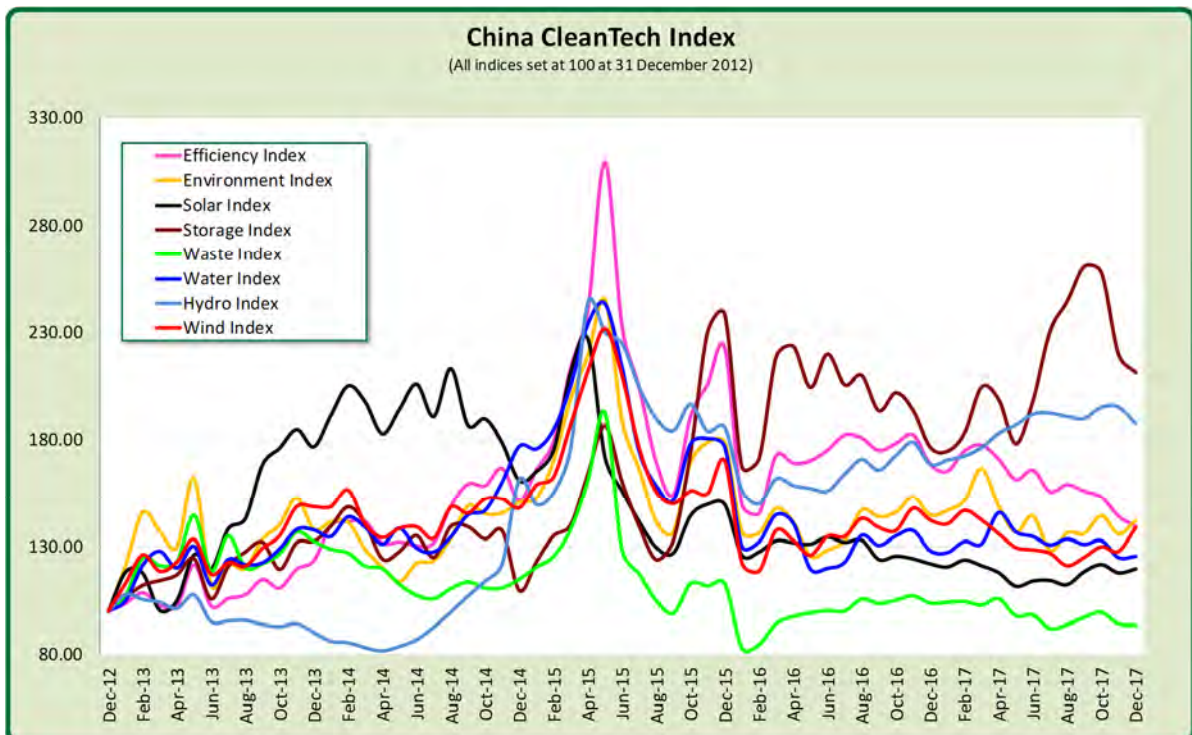
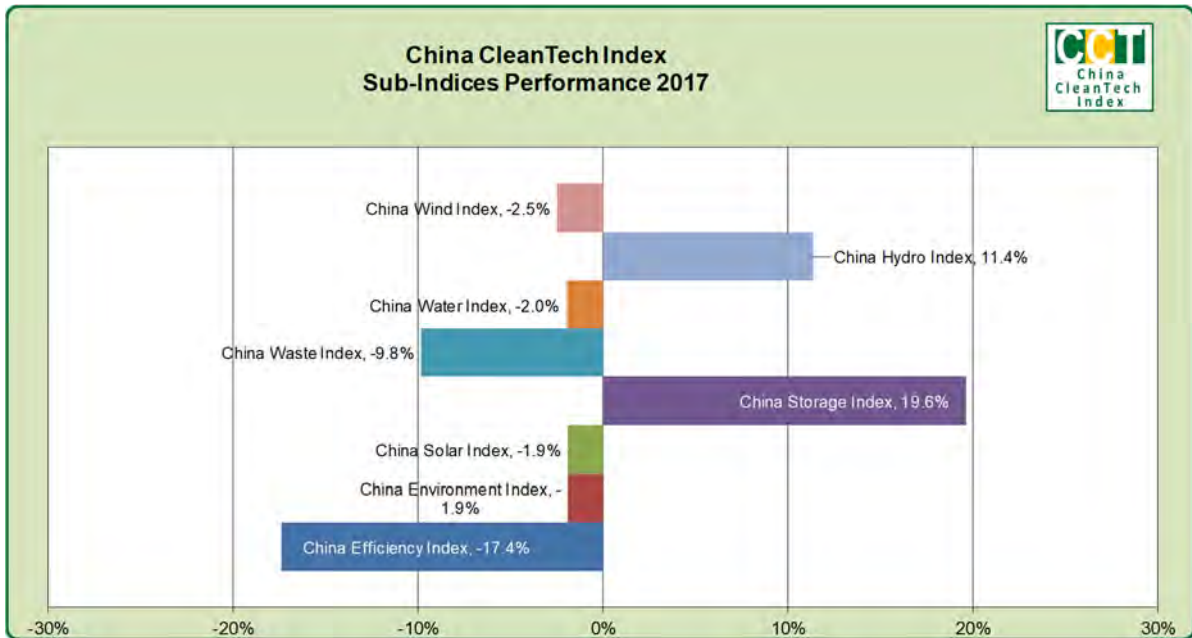
	2013	2014	2015	2016	4Q17	2017
China Efficiency Index	23.5%	22.6%	47.1%	-24.3%	-10.6%	-17.4%
China Environment Index	37.7%	9.3%	18.7%	-19.1%	4.3%	-1.9%
China Solar Index	76.9%	-9.0%	-7.0%	-18.4%	1.0%	-1.9%
China Storage Index	32.2%	-17.2%	117.5%	-25.9%	-19.0%	19.6%
China Waste Index	32.5%	-13.2%	-1.8%	-8.1%	-3.8%	-9.8%
China Water Index	37.6%	28.7%	-0.2%	-27.6%	-4.2%	-2.0%
China Hydro Index	-9.9%	78.9%	15.2%	-9.3%	-1.2%	11.4%
China Wind Index	48.5%	-0.3%	14.9%	-16.4%	11.1%	-2.5%

Three of the eight sub-indices recorded gains for the quarter. The best results were the 11.1% gain for the China Wind Index and the 4.3% gain for the China Environment Index. The worst results were recorded by the 19.0% loss from the China Storage Index and 10.6% loss from the China Efficiency Index.





Over 2017, only two of the sub-indices recorded gains. The best result was the 19.6% gain for the China Storage Index and the worst result was recorded by the 17.4% loss from the China Efficiency Index.



## 4. Index Component Companies

The 20 largest Index constituents by market capitalisation on 31 December 2017 are provided in the table below. These stocks will be the constituents of the China CleanTech 20 until the Index rebalance on 31 March 2018.

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

New entrants to this list at this rebalance are Beijing New Building Materials and Sungrow Power taking the place of GCL System Integration Technology and Guangdong Golden Dragon Development.

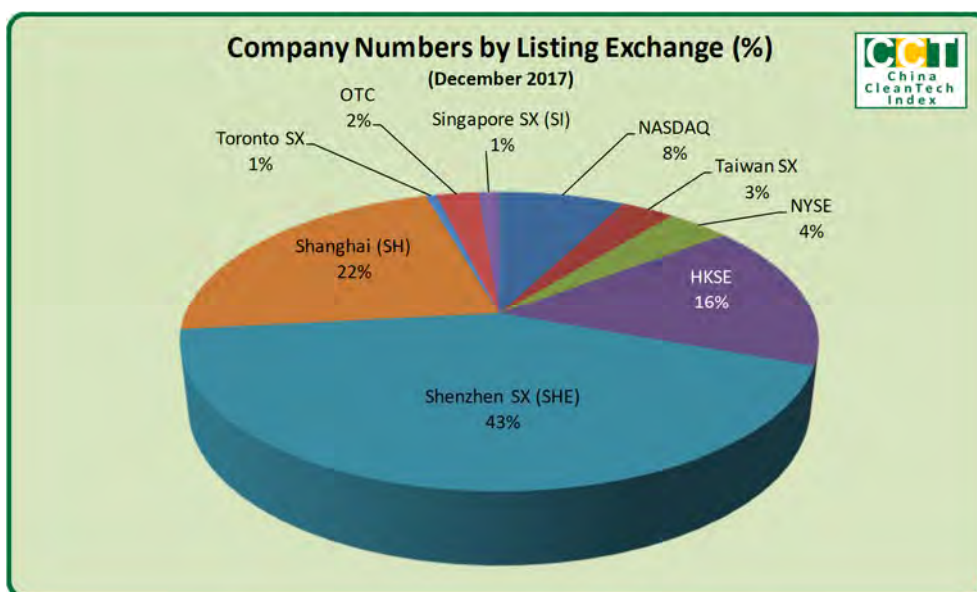
	Company	Sector	Exchange	Code
1	China Yangtze Power Co., Ltd.	WAVE, TIDAL, HYDRO	Shanghai (SH)	600900.SS
2	Hanergy Thin Film Power Group Ltd	SOLAR	HKSE	0566.HK
3	Power Construction Corporation of China,	WAVE, TIDAL, HYDRO	Shanghai (SH)	601669.SS
4	Beijing SJ Environmental Protection and New Material Co. Ltd	ENVIRONMENTAL SERVICES	Shenzhen SX (SHE)	300072.SZ
5	Beijing Originwater Technology Co., Ltd.	WATER	Shenzhen SX (SHE)	300070.SZ
6	Xinjiang Goldwind Science & Technology Co.	WIND	Shenzhen SX (SHE)	002202.SZ
7	Sichuan Tianqi Lithium Industries, Inc.	STORAGE & FUEL CELLS	Shenzhen SX (SHE)	002466.SZ
8	Jiangxi Ganfeng Lithium Co.,Ltd.	STORAGE & FUEL CELLS	Shenzhen SX (SHE)	002460.SZ
9	Beijing Enterprises Water Group	WATER	HKSE	0371.HK
10	China Everbright International	WATER	HKSE	0257.HK
11	Beijing New Building Materials Public Limited Company	GREEN BUILDINGS	Shenzhen SX (SHE)	000786.SZ
12	China Longyuan Power Group Corp	WIND	HKSE	0916.HK
13	Sound Environmental Resources Co., Ltd.	WASTE	Shenzhen SX (SHE)	000826.SZ
14	Chongqing Water Group Company Limited	WATER	Shanghai (SH)	601158.SS
15	Tsinghua Tongfang Co., Ltd.	ENERGY EFFICIENCY & BIOMATERIALS	Shanghai (SH)	600100.SS
16	Sungrow Power Supply Co	SOLAR	Shenzhen SX (SHE)	300274.SZ
17	Beijing Capital Co., Ltd.	WATER	Shanghai (SH)	600008.SS
18	Beijing SPC Environment Protection Tech Co., Ltd.	ENVIRONMENTAL SERVICES	Shenzhen SX (SHE)	002573.SZ
19	Shenwu Environmental Technology Co Ltd	ENERGY EFFICIENCY & BIOMATERIALS	Shenzhen SX (SHE)	300156.SZ
20	Huaneng Renewables Corp Ltd	WIND	HKSE	0958.HK

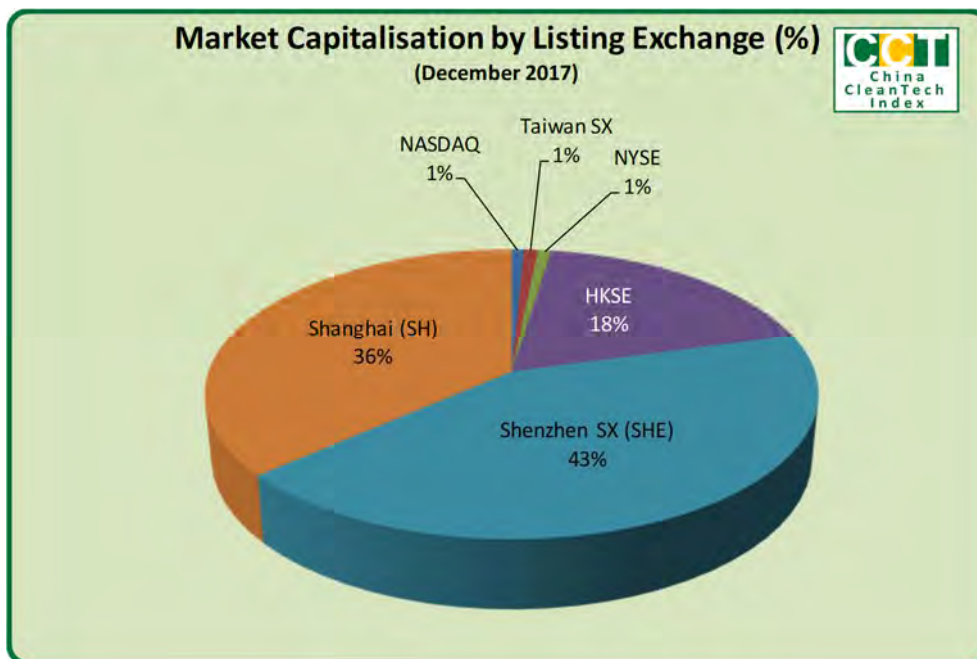
### 5. Index Profile

The profile of the constituent companies that comprise the China CleanTech Index provides some context for its performance. The 157 constituent companies over the year are listed on nine 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 36% 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 2017
NASDAQ	12	¥ 15,961
Taiwan SX	5	¥ 17,745
NYSE	6	¥ 17,133
HKSE	25	¥ 387,213
Shenzhen SX (SHE)	67	¥ 905,428
Shanghai (SH)	35	¥ 770,206
Toronto SX	1	¥ 30
OTC	4	¥ 8
Singapore SX (SI)	2	¥ 153
<b>TOTAL</b>	<b>157</b>	<b>¥ 2,113,877</b>

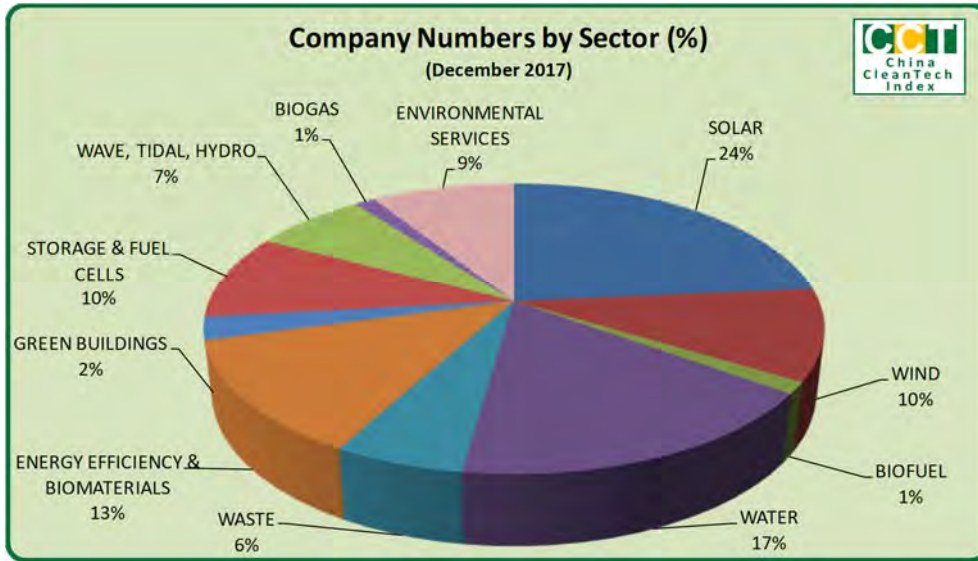




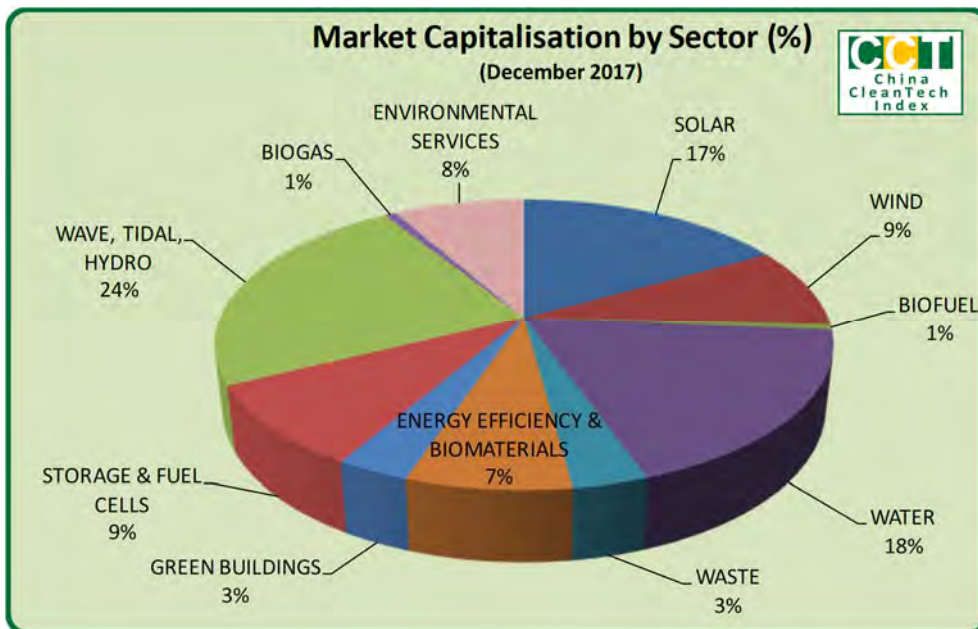
When considering the various sub-sectors present in the China CleanTech Index, the company numbers are led by Solar (23.6%) followed by Water (17.2%) and Energy Efficiency (12.7%).

Sector	Number of Companies	Market Capitalisation (RMB million) December 2016
SOLAR	37	¥ 355,670
WIND	16	¥ 188,386
BIOFUEL	2	¥ 12,867
WATER	27	¥ 385,271
WASTE	9	¥ 70,259
ENERGY EFFICIENCY	20	¥ 154,205
GREEN BUILDINGS	4	¥ 68,300
STORAGE & FUEL CELLS	15	¥ 194,238
WAVE, TIDAL, HYDRO	11	¥ 497,086
BIOGAS	2	¥ 14,060
ENVIRONMENTAL SERVICES	14	¥ 173,535
<b>TOTAL</b>	<b>157</b>	<b>¥ 2,113,877</b>





The market capitalisation of the sub-sectors shows that Hydro (23.5%), Water (18.2%) and Solar (16.8%) 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 (44, 28%) 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 five 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 2017 have seen a slight movement of company numbers into smaller market capitalization categories.

