



Australian CleanTech Index

2017-18

Annual Performance Report

July 2018

To request further information or to be added to the distribution list for future ACT Australian CleanTech Index reports, please see www.auscleantech.com.au/Pages/cleantech.html

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1. Australian CleanTech Index Overview

The Australian CleanTech Index provides the definitive measure of the performance of Australian listed cleantech stocks.

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.

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

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 90 companies falling under the coverage of the Index and with a combined market capitalisation, after its rebalance, of over \$45.0 billion, the Australian CleanTech Index presents for the only complete picture of the Australian cleantech industry’s growth in a single measure.

The Index is weighted by market capitalisation and is benchmarked against both the ASX200 and the ASX Small Ordinaries. The rules for the formulation and management of the Index have been developed with reference to global best practice. An overview of these rules is provided in this annual performance report.

Monthly results can be emailed directly to interested parties by subscribing at http://www.auscleantech.com.au/pages/ACT_Australian_Cleantech_Index.php.

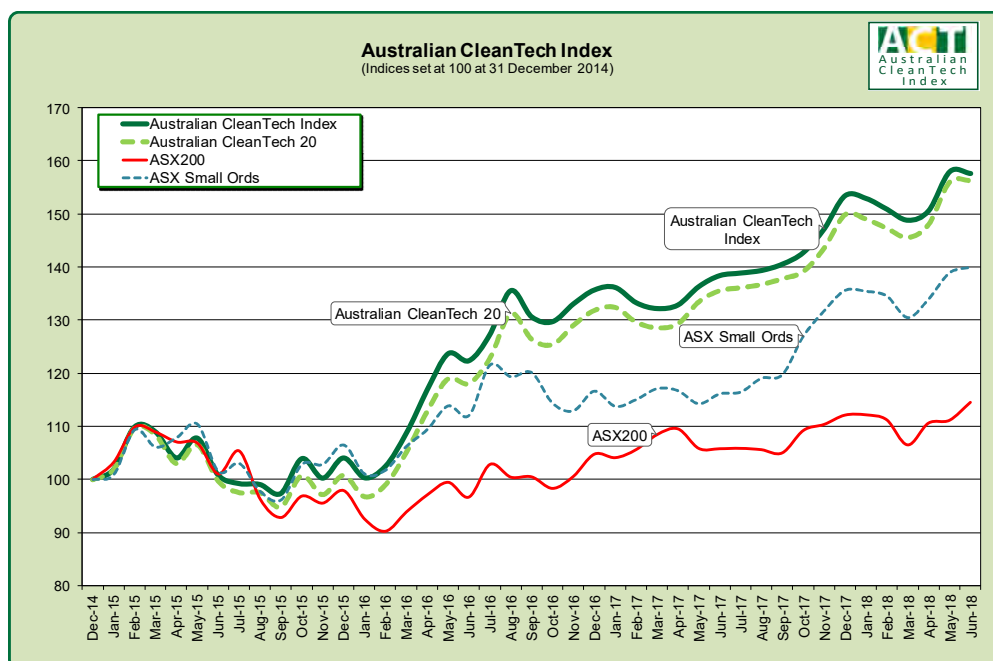
2. FY18 Index Performance: Five years of outperformance

The Australian CleanTech Index outperformed the ASX200 for the FY18 financial year **extending its record of annual outperformance to five years!**

Over the fourth quarter of the 2018 fiscal year, the Australian CleanTech Index recorded a gain of 5.9% compared to the ASX200's gain of 7.6% and the ASX Small Ordinaries' 7.3% gain.

Over the full 2018 fiscal year, the Australian CleanTech Index recorded a gain of 13.9%, ahead of the ASX200's gain of 8.3% but behind the strong 20.5% from the ASX Small Ordinaries. The Index has outperformed the ASX200 over each of the last five years, with returns over the full period now at nearly **80% higher over 5 years or 16% per annum.**

Percentage Change	FY15	FY16	FY17	JUN'18	4Q FY18	2H FY18	FY18	3Yrs	5Yrs
Australian CleanTech Index	16.6%	21.3%	13.1%	-0.23%	5.9%	2.7%	13.9%	56.3%	118.0%
Australian CleanTech 20	16.0%	18.4%	14.8%	0.18%	7.4%	4.3%	15.3%	56.7%	117.4%
ASX200	1.3%	-4.3%	9.4%	3.04%	7.6%	2.1%	8.3%	13.3%	29.0%
ASX Small Ords	-2.8%	10.4%	3.6%	0.76%	7.3%	3.2%	20.5%	37.9%	47.0%



The market capitalisation of the now 90 stocks in the Australian CleanTech Index is A\$45.4 billion, after its rebalance, setting another new high for the sector.

The quarter's performance was driven by 15 companies with gains of more than 10%. The greatest gains were recorded by **Seafarms Group (SFG.AX)**, **Sterling Biofuels (SBI.AX)** and **Phoslock Water Solutions (PHK.AX)**. These gains were partially offset by 16 companies recording losses of more than 30% led by **Battery Minerals (BAT.AX)**, **Kalina Power (KPO.AX)** and **Papyrus Australia (PPY.AX)**.

The FY18 performance was driven by 17 companies with gains of more than 30%. The greatest gains were recorded by **HRL Holdings (HRL.AX)**, **Phoslock Water Solutions (PHK.AX)** and **Australian Vanadium (AVL.AX)**. These gains were partially offset by 14 companies recording losses of more than 30% led by **Range International (RAN.AX)**, **Eden Innovations (EDE.AX)** and **Kalina Power (KPO.AX)**.

The best and worst performers in terms of share price performance over the last quarter and the full year are shown in the table below.

Fourth Quarter FY18		
Worst Performers Share Price Loss > 30%		Best Performers Share Price Gain > 10%
Quantum Energy CleanTeQ De.Mem Papyrus Australia Bluglass RedFlow Simble Sense Battery Minerals	BlackEarth Minerals First Cobalt Corp Lithium Australia Volt Resources Carnegie Clean Energy Kalina Power Aeris Environmental Carbonxt	Sterling Biofuels Phoslock Water Solutions Reece Reliance Worldwide Corp Cleanaway Waste Range International Metro Performance Glass Nanosonics HRL Holdings Seafarms Group
Full Year FY18		
Worst Performers Share Price Loss > 30%		Best Performers Share Price Gain > 30%
Algae.Tec De.Mem Fluence Corp Reece Range International SciDev Eden Innovations Hazer Group Metro Performance Glass RedFlow Carnegie Clean Energy ReNu Energy Kalina Power Aeris Environmental	Tag Pacific Sterling Biofuels Phoslock Water Solutions Reliance Worldwide Corp Water Resources Group AnaeCo Bingo Industries Volt Power Group Australian Vanadium Galaxy Resources Lithium Australia Orocobre Protean Wave Energy HRL Holdings Environmental Group Seafarms Group Australian Ethical Investment	

Index Rebalance

The Australian CleanTech Index underwent its quarterly rebalancing at the end of June which took account of recent share issues and other corporate activity. One company was removed from the Index and five companies were added to the Index.

Removal from the Index

- **TOX FREE SOLUTIONS (ASX:TOX)** – Following its acquisition by Cleanaway Waste Management, the company was delisted from the ASX.

Additions to the Index

- **BUDDY PLATFORM (ASX:BUD)** - Buddy Platform Limited provides first data aggregation, management and control platforms for the IoT and connected devices. Buddy advances the Quantified Economy by providing the infrastructure by which businesses and organizations can, in real time, access and analyze the data generated by connected devices. Buddy Platform is headquartered in Seattle, Washington, with offices in Adelaide, Australia. The stock has also been added to the **Australian Efficiency & Storage Index**.
- **CLEARVUE TECHNOLOGIES (ASX:CPV)** – ClearVue’s technology allows visible light to pass through a pane of glass, while the invisible wavelengths of light are deflected to the edges of the glass where they are converted into electricity. ClearVue PV technology can transform a glass building into a massive solar panel, generating power where it’s needed, reducing power transmission requirements across large distances. The stock has also been added to the **Australian Renewable Energy Index**.
- **TECHNOLOGY METALS AUS (ASX:TMT)** - The Company’s primary exploration focus is on the Gabanintha Vanadium Project located 40km south east of Meekatharra in the mid-west region of Western Australia with the aim to develop this project to potentially supply high-quality V2O5 flake product to both the steel market and the emerging vanadium redox battery (VRB) market. The stock has also been added to the **Australian Sustainable Minerals Index**.
- **TILT RENEWABLES (ASX:TLT)** – A leading developer, owner and manager of renewable energy generation assets in Australia and New Zealand which was formed as a result of a demerger from Trust Power in 2016. The stock has also been added to the **Australian Renewable Energy Index**.

- **JERVOIS MINING (ASX:JRV)** - Jervois' core project is the 100%-owned Nico Young nickel-cobalt laterite deposit in New South Wales, Australia. Cobalt and nickel form critical components of the cathodes in lithium ion batteries, with increasing demand as for electric vehicles (EVs) continues to grow. The stock has also been added to the **Australian Sustainable Minerals Index**.

3. Component Sub-Indices

To provide an analysis of the Australian CleanTech Index, a number of sub-indices have been developed. The performance of each of these sub-indices over the last five financial years is shown in the table and charts below.

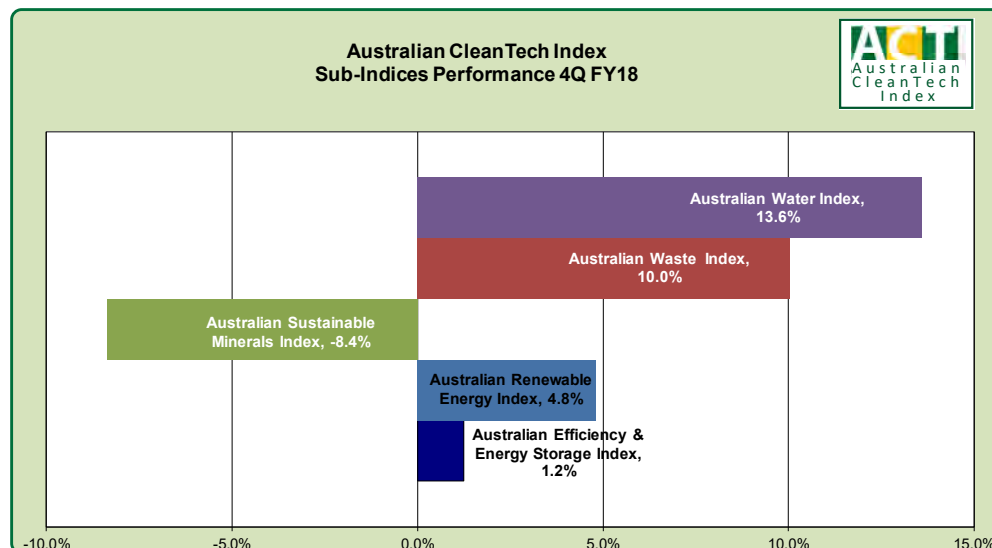
The best performing sector for the three months to June 2018 was the Australian Water Index and the worst performer was the Australian Sustainable Minerals Index with drop across many of the lithium stocks.

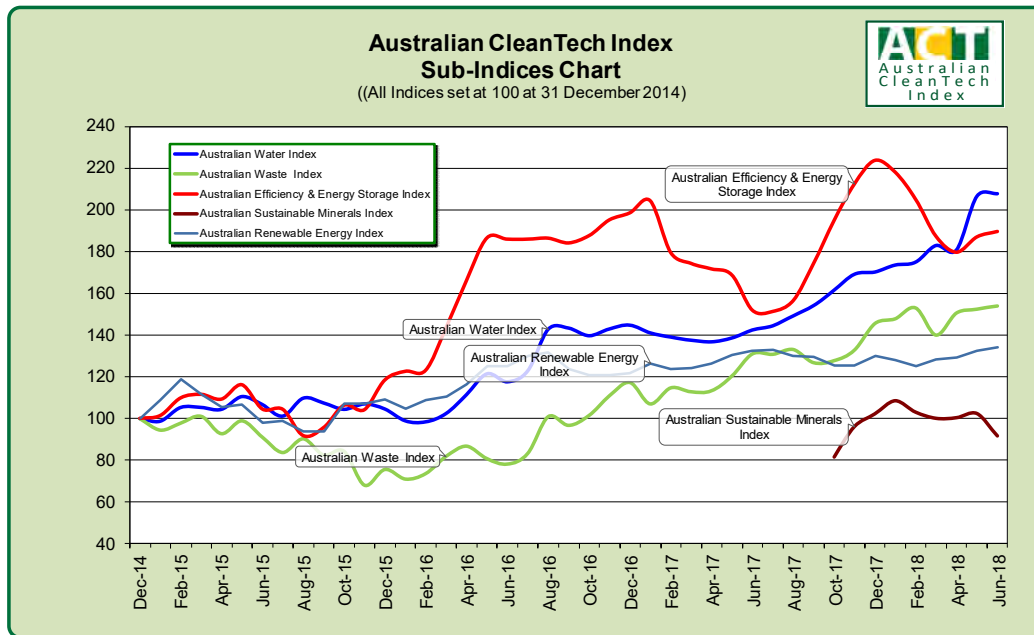
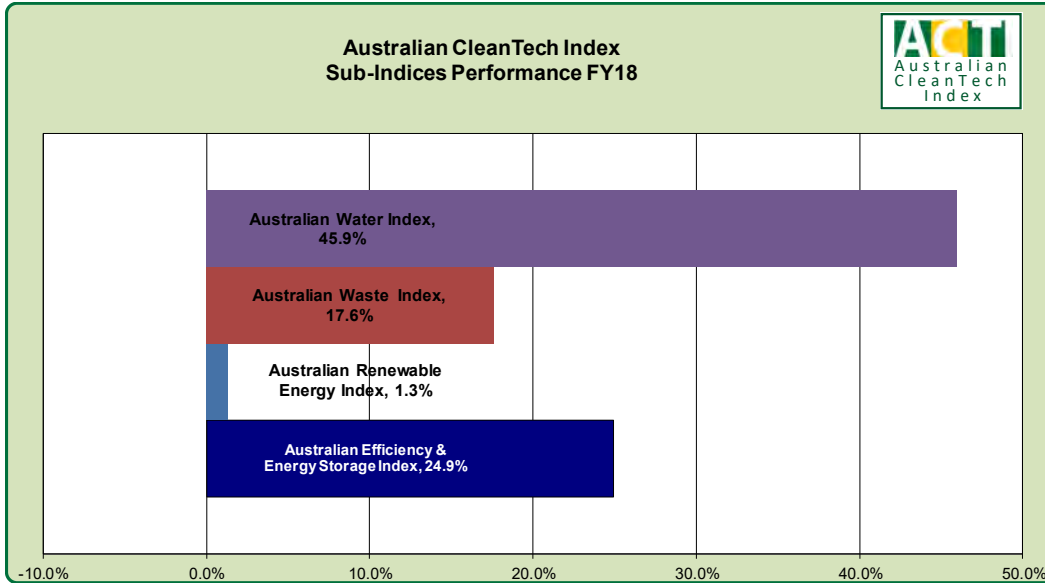
Over the 2017-18 financial year, the best performing index was the Australian Water Index, being driven by very strong growth in Reliance Worldwide Corp over the period, with the Australian Renewable Energy Index showing the weakest performance.

Australian CleanTech Sub-Indices

	FY14	FY15	FY16	FY17	4Q FY18	FY18
Australian Efficiency & Storage Index	2.9%	31.0%	78.1%	-18.4%	1.2%	24.9%
Australian Renewable Energy Index	10%	29.5%	27.4%	6.2%	4.8%	1.3%
Australian Sustainable Minerals Index	-	-	-	-	-8.4%	-
Australian Waste Index	18.3%	-7.4%	-14.3%	68.0%	10.0%	17.6%
Australian Water Index	26.3%	16.1%	10.3%	21.1%	13.6%	45.9%

The 4Q18 and the FY18 results are shown on the bar charts below.





4. Component Companies on 30 June 2018

The largest 20 largest Index constituents by market capitalisation on 30 June 2018 are provided in the table below. These companies will form the constituents of the Australian CleanTech 20 until the index is rebalanced again on 30 September 2018.

Market Cap Ranking	Company	Ticker
1	Meridian Energy	MEZ.AX
2	Reece	REH.AX
3	Mercury NZ	MCY.AX
4	Reliance Worldwide Corp	RWC.AX
5	Contact Energy	CEN.AX
6	Cleanaway Waste	CWY.AX
7	Sims Metal Management	SGM.AX
8	Orocobre	ORE.AX
9	Galaxy Resources	GXY.AX
10	Bingo Industries	BIN.AX
11	Nanosonics	NAN.AX
12	Syrah Resources	SYR.AX
13	Infigen Energy	IFN.AX
14	CleanTeQ	CLQ.AX
15	Tilt Renewables	TLT.AX
16	New Energy Solar	NEW.AX
17	Beacon Lighting Corp	BLX.AX
18	Pacific Energy	PEA.AX
19	Magnis Resources	MNS.AX
20	Pro-Pac Packaging	PPG.AX

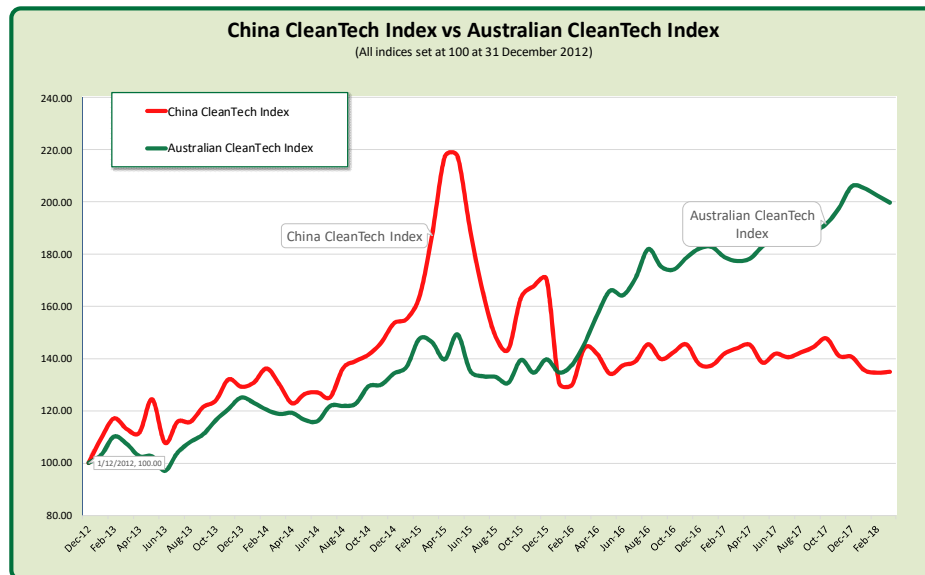
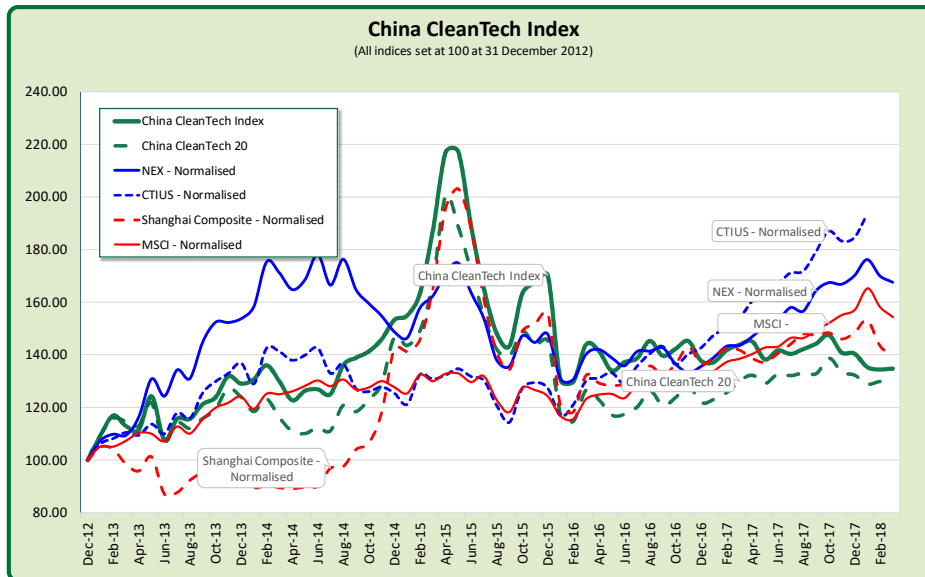
There were two new entrants to the Australian CleanTech 20 in this rebalance: Tilt Renewables and Pacific Energy which replaced the outgoing Tox Free Solutions and First Cobalt Corp.

Each of the constituents in the Australian CleanTech 20 has a market capitalisation of more than \$215m.

For a full listing of all companies included in the ACT Australian CleanTech Index, please email your request to index@auscleantech.com.au.

5. China CleanTech Index

Australian CleanTech, through its Beijing-based Chinese operations, publishes the China CleanTech Index. This index tracks all 157 Chinese-based listed cleantech companies wherever they are listed and provides the definitive measure of Chinese cleantech stocks for global markets. The charts below show the performance of the China CleanTech Index against its benchmarks from December 2012 to the end of April 2018 and also show the relative performance of the China CleanTech Index against the ACT Australian CleanTech Index.



Full details of the China CleanTech Index can be downloaded from www.sinocleantech.com, where it is also possible to sign up to receive the monthly performance reports.

6. Overview of Index Rules

Criteria for Inclusion

To be included in the Australian CleanTech Index, a company must be listed on an Australian based stock exchange and have the majority of the current or future revenues generated from an approved cleantech activity. Australian companies listed only on overseas exchanges are excluded as are companies that have some cleantech activities but the majority of their revenue is generated from non-cleantech activities. International companies listed in Australia, even where there are minimal Australian operations, are included in the Index.

Closing Prices

The Australian CleanTech Index and its sub-indices are calculated based on the closing prices on the last day of trading of each calendar month. The Index values are the result of calculating the total market capitalisation of the companies included in the index and normalising this value in comparison to the total market capitalisation at the starting point of the Index. The value of each index was set to equal 100 on 31 December 2014.

Number of Shares

The number of shares used in the calculation of the market capitalisation of each company is based on the total number of Ordinary Shares, including those that are held in escrow and are temporarily unlisted. Shares that are not included in the calculation include listed and unlisted Options, Preference Shares, Warrants and Convertible Notes.

During share buy-back schemes, shares are only removed from the index once they have been cancelled by the company. Shares issued as part of Rights Issues are only included in total shares if formally announced by the company as having been taken up.

Rebalancing

The Indices are all rebalanced at the end of each quarter to take account of any changes to the capital structures of the constituent companies and to add or remove companies to the Index as required. Companies may be added if they have been listed during the previous quarter or have changed their operation such that the majority of their current or future revenue is derived from an approved cleantech activity. Conversely, companies may be removed from the Index if they have been delisted or their activities have changed such that the majority of their current or future revenue will not be sourced from an approved cleantech activity. If a company's shares are suspended from trading, the company remains in the index at rebalancing until such time as it is delisted.

The Index is calculated both prior to and after the rebalancing. The normalising factor is then adjusted to ensure that Index value is unchanged due to the act of rebalancing.

Exclusions

The Australian CleanTech Index excludes some sub-sectors that are included in some other global clean energy and cleantech measures. The reason behind this is to keep the Index focussed on 'pure' cleantech companies that will form part of long term sustainable solutions. The following sub-sectors are excluded from the Index:

'Clean' Fossil Fuels

Natural gas, coal seam methane, underground coal gasification, gas to liquids, carbon capture and storage and clean coal technologies are each sometimes included in indices and funds focussed on clean energy. All of these are excluded from the Australian CleanTech Index because, whilst they have lower emissions profiles than other fossil fuel energy sources, they are all still reliant on fossil fuels and are therefore at best only a transition resource or technology.

Nuclear and Uranium

Whilst the emissions profile of the nuclear industry means that it is likely to form part of the long term global solution to climate change, there are still significant parts of the Australian community that have concerns over the environmental impacts of uranium transport, usage and waste storage.

To prevent this discussion becoming a distraction to the performance of the Australian CleanTech Index, this sub-sector is currently excluded.

Agri-Business

Agri-businesses are included in many measures of environmental performance due to their clear interaction with the environment. Whilst the Australian CleanTech Index will include companies that provide products and services to improve agriculture's impact on the environment through, for instance, the use of water and energy saving technologies, it will not include the businesses that merely purchase these technologies.