

## **Cleantech: Mainstream and at the Edge**

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Cleantech is the word of the moment. Everywhere you turn it is being used. Law firms, accountants and banks all have cleantech groups. Governments have cleantech taskforces.

These groups often fail to define the term they are using. One definition adapted from the US research group, CleanEdge, encapsulates the spirit of cleantech:

*Economically viable products, services and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources and cut or eliminate emissions and wastes.*

More concisely cleantech contains products and services that have 'economic and environmental benefits'. The sub-sectors of cleantech include renewable energy, water, waste and recycling, construction materials, energy efficiency, carbon trading and environmental services.

The cleantech sector in Australia has been profiled recently in the Australian Cleantech Review. The analysis provides some interesting patterns in the sub-sectors with the greatest activity levels and the regions in which they are based. As a sector, the companies had a combined revenue of \$9.2 billion and employed over 13,000 people. They raised a total of \$2.3 billion in new funds during the 2009 calendar year.

Internationally, the growth of the cleantech sector over the last four years has been meteoric. This growth is being driven in Europe by regulatory measures and the EU Emissions Trading Scheme and in the United States by the voracious appetite of the venture capital industry, combined with Government stimulus spending. In China the massive 'green stimulus' package is being complemented with far reaching regulatory measures. Other countries, such as Korea, see a great economic opportunity to leapfrog other developed countries through securing a leading position in cleantech.

Australia appears to be lagging on all of these fronts. The government stimulus is fragmented and small, the regulatory measures are providing only limited assistance and the venture capital industry is under-funded.

Yet Australian research and innovation is producing some of the world's leading technologies which are 'at the edge' of progress. Companies such as BluGlass with its platform technology that is seeking to produce both cheap LEDs and ultra-high efficiency photovoltaic cells have struggled to get funded at home. Other Australian technologies leading the world include Dyesol, with its solar dye technology, CMA Corp with its zinc recycling technology and Carnegie with its wave technology.

All of these have the potential to change the way the world works and all have originated in Australia.

Cleantech also however encompasses some mainstream type businesses. Water, waste, photovoltaic and wind are the sectors that are tipped to grow most in Australia in the next two years. These are being driven by increasing regulations on water quality, recycling and renewable energy uptake.

During the 18 months in which the global capital markets were frozen saw this increase in regulatory regimes driving cleantech demand and large amounts of stimulus spending focussed at cleantech commercialisation. The confluence of these events has led to a unique situation for cleantech. Market demand is being forced up through regulation and increasing community sentiment whilst, at the same time, the many technologies have been pushed closer to being market-ready.

The private capital market will now have to play 'catch-up' and 2010 is likely to see a large increase again in investments in new clean technologies. 2009 saw large amounts of secondary capital raised by Australian listed companies looking to reduce debt and shore up their balance sheets. 2010 however will instead see a number of larger IPOs and increasing venture capital and private equity investments. For example, the ASX recently listed the \$100m Chinese plastics recycling company, Novarise.

Cleantech is indeed the word of the moment and will continue to be for some time to come. Australia has the ability to contribute significantly to the global cleantech sector and there are many potential long term benefits from becoming a cleantech innovation hub. These benefits derive from the fact that cleantech encompasses innovation that occurs in both the 'mainstream and at the edge' of industrial progress.

By working on both fronts simultaneously, cleantech innovation can produce a balanced economy that will help transition Australia into a sustainable future.

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