

Climate Change and Alternative Energy – an Update

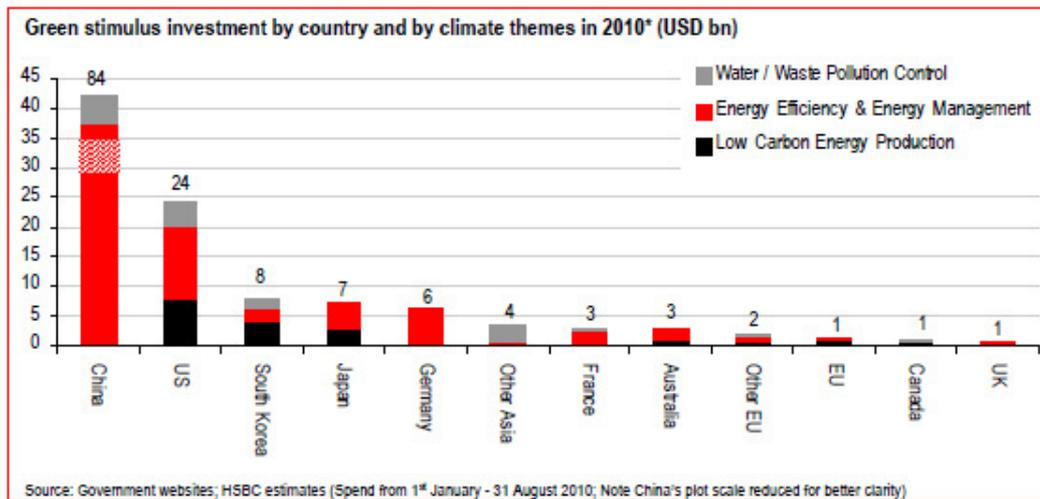
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The Cancun Challenge

The 2010 United Nations Climate Change Conference will be held in Cancun, Mexico from 29 Nov to 10 Dec 2010. However, not many countries are hopeful that the conference will yield a global treaty on carbon emissions going by the failure to reach any agreement after 4 preliminary rounds of discussions held this year with the latest in Tianjin ⁽¹⁾ last month. One of the increasingly difficulties is the greater division between the developed and developing nations in particularly between the Chinese and US officials.

However, even with the stalemate, the HSBC Climate Investment Update report released on 20 Sep 10 showed that governments around the world are still adhering to their “Green Stimulus” packages in 2010 with China taking the lead (See Chart below):



While the Chinese government is lauded for its investment efforts, the HSBC 4th Annual Climate Confidence Monitor 2010 ⁽²⁾ showed that its' citizens place climate change as their 3rd concern after the Global Economic Stability and Natural Disasters (chart below):

	Avg	AU	BR	CA	CN	FR	GE	HK	IN	JP	MA	MX	SG	UK	US	VN
Global economic stability	17	15	6	19	25	8	8	22	8	40	14	15	28	18	31	5
Terrorism	17	19	9	15	5	21	22	7	42	5	18	14	22	23	22	17
Climate change	16	13	14	18	17	9	15	25	15	28	13	15	12	8	6	30
Violence in everyday life	15	26	32	16	4	21	10	6	8	3	14	29	4	21	17	6
Global poverty	11	9	22	12	5	21	20	8	14	4	4	16	5	10	6	8
Natural disasters	8	4	7	6	19	6	11	11	6	10	11	5	9	3	5	13
Pandemic diseases	8	5	8	6	15	7	3	16	5	5	12	3	15	4	4	18
Social breakdown	7	9	3	7	10	6	12	5	2	5	14	3	4	13	9	4

Indicates top ranked issue in each country

For the 4th year since 2007, HSBC has been publishing its annual survey on the “Climate Change Monitor”. The survey conducted online covering 15,000 respondents over 15 countries whose population is over 50% of the global population is aimed at providing an insight into consumers perspective of climate change

With the Obama Administration losing its mandate at the House of Representatives during the recent mid-term election, President Obama will face an uphill task to convince law makers to push through its comprehensive energy policy in the short term ⁽³⁾.

Tiping Point for Alternative Energy

On the other hand, the Singapore government is prepared to apply a “carbon price” through either a carbon tax system or cap-and-trade-scheme should a global agreement is reached on carbon emissions. Singapore, Asia’s 3rd largest oil refinery centre has been investing in industry research and development, developing infrastructures such as the [clean tech park](#) (CTP) in Jurong, diversifying energy supplies through the use of compressed nature gas (CNG), solar and wind energy. Even the option to use nuclear energy as an alternative energy source is considered in order to protect the country against disruptions and price fluctuations of conventional oil-based sources ⁽⁴⁾.

The concern over energy security is foremost in the minds of countries that are dependent on fossil fuel and oil for economic growth. In an email to Shell employees in Jan 2008, Jeroen van der Veer, the chief executive officer of Royal Dutch Shell wrote, “...Regardless of which route we choose, the world’s current predicament limits our maneuvering room. We are experiencing a step-change in the growth rate of energy demand due to population growth and economic development, and Shell estimates that after 2015 supplies of easy-to-access oil and gas will no longer keep up with demand. As a result, society has no choice but to add other sources of energy-renewable, yes but also more nuclear power and unconventional fossil fuels such as oil sands. Using more energy inevitably means emitting more carbon dioxide at a time when climate change has become a critical global issue ...” ⁽⁵⁾.

It is generally acknowledged that when a market price is fixed to carbon, market economics will lead to several outcomes; ie a sudden moderation in energy usage but this will not be sustained over a longer term, surge in innovations in making alternative energy sources more cost effective, government legislation and subsidies to promote user of cleaner energy alternatives, etc.

But not all form of alternative energy requires more innovative approaches or new technology to make them cost effective.

Solar Panels and Zero Energy Building

Five years ago, the solar panel market was dominated by companies from Europe and Japan with 75% market share but last year, Chinese and Taiwanese solar panel manufacturers got more than 50% of the global market. Europe and US companies have been investing in technology to make solar panels more cost effective. Take for instance, Silicon Valley’s Solyndra, a high-tech company that has been spending lots of time and efforts trying to make photovoltaic (PV) cells using copper indium gallium selenide (CIGS). Unlike conventional solar cells that are made from silicon wafers; CIGS cells can be deposited on glass or flexible materials which can be deployed on the sun roof of the electric vehicles or use on portable devices to power consumer electronic gadgets.

The problem is that producing CIGS on a mass scale is a formidable challenge.

In the meantime, Chinese companies focus on mass producing conventional solar panels using PV cells with silicon has seen its prices dropping over the past few years. With mass production and reduced prices, adoption of conventional solar panels has picked up as pay back period of less than 10 years is now achievable.

In Singapore, almost one year into its operation, the Zero Energy Building (ZEB), the flagship R&D project of the Building and Construction Authority (BCA) has achieved net zero power consumption. In fact, over a 9-month period (Oct 2009 to Jun 2010), the ZEB has generated a surplus of 16.3 MWh which is sufficient to power 35 HDB 5-room flat for a period of 1 month. To achieve the net zero energy power consumption, the building has produced electricity through the use of PV solar panels installed over an area of 1,540 square meters of ZEB’s roof and other prominent areas to tap the sun’s energy.

So while Singapore continues to keep its nuclear energy as an open option, the ZEB is a demonstration that the concept of zero energy building is possible even in countries like Singapore where air-conditioning loads take up over 50% of the electricity consumptions of typical office buildings in the topics.

Notes:

⁽¹⁾ International Centre for Trade and Sustainable Development: <http://ictsd.org/i/news/bridgesweekly/86988/>

⁽²⁾ The HSBC Climate Confidence Monitor is published annually since 2007. The 4th report published on 25 Oct 10 can be downloaded from: <http://www.hsbc.com/1/2/climateconfidencemonitor>

⁽³⁾ The Energy Collective website dated 4 Nov 2010 at:

<http://theenergycollective.com/nathanaelbaker/46645/us-leadership-stumbles-again-obama-says-new-energy-policy-unfeasible>

⁽⁴⁾ "Making the right energy choice" by Today Online at: <http://www.todayonline.com/Singapore/EDC101102-0000070/Making-the-right-energy-choice>

⁽⁵⁾ Jerome Paris, "Shell Energy Futures", The Oil Drum, 25 Jan 2008, <http://www.theoil Drum.com/node/3548>

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