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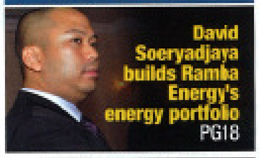

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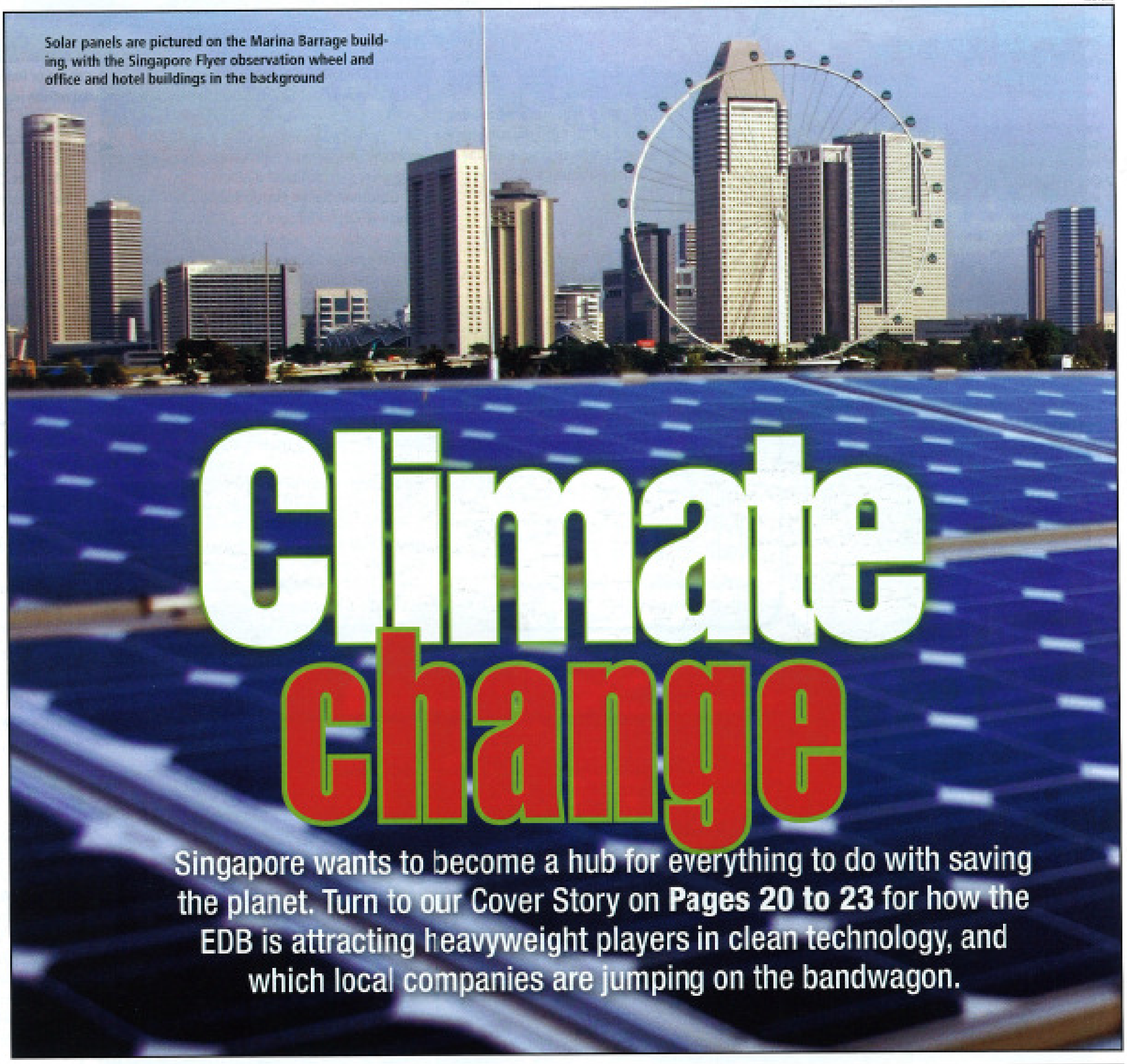

Solar panels are pictured on the Marina Barrage building, with the Singapore Flyer observation wheel and office and hotel buildings in the background

Climate change

Singapore wants to become a hub for everything to do with saving the planet. Turn to our Cover Story on **Pages 20 to 23** for how the EDB is attracting heavyweight players in clean technology, and which local companies are jumping on the bandwagon.

Harnessing solar energy is one of the many industries in the clean-tech sector

Going GREEN

The business of saving the world is opening up a host of new opportunities for many dull, moribund companies in Singapore. Should investors give chase?

| BY JOAN NG |

Matthew Hui, CEO of **Swing Media Technology Group**, worked seven-day weeks for years, building up his company from a struggling maker of floppy disks back in 1995 to a profitable producer of DVDs and CDs today. In fact, despite the credit crunch and recession, the company still managed to report a 20.4% rise in revenue to HK$634.9 million ($114.1 million) and a 3.1% increase in earnings to HK$38.1 million for FY2009 ended March. However, Hui felt that the long-term prospects for the business were limited, and he wanted to get Swing Media into the fast-growing clean-technology sector instead. Finding an exciting new business would take more than backbreaking hard work, though.

Fortunately, Hui had in 2004 attended the prestigious Tsinghua University in Beijing to obtain an executive MBA. Tsinghua University is the school of choice for China's political elite as well as its most important businessmen, some of whom attend the school simply to build their rolodexes. And, that *guanxi* — or network of connections — proved to be very useful in helping Hui find the clean-technology business he wanted. "I wanted a business that would require low levels of investment but had the potential for significant returns," he says.

On Oct 12, Swing Media said it would pay RMB6 million ($1.2 million) for an 80% stake in Shanghai Hui Yang New Energy Technology, a private company that holds patents for the installation of solar-energy systems in petrol stations. Shanghai Hui Yang's system essentially enables petrol stations to save money by using solar energy to supplement their electricity needs. Hui believes the business will be profitable because the Chinese government offers a subsidy of RMB20 for every watt of solar energy installed. He says this subsidy more than covers the cost of installation.

Shanghai Hui Yang has installed only one such system so far, in a **PetroChina** station, which earned it a profit of RMB50,000. But, it has already signed MOUs to fit out another 216 stations. If Swing Media completes this purchase, Hui believes it will significantly change the company's profile and lift its pace of growth. "There are some 19,000 PetroChina stations in China, and another 29,000 Sinopec stations," he says. "That's a lot of stations." The market seems to agree with him. Shares in Swing Media are up 16.7% in the past month.

Green boom

Renewable energy. Clean technology. Environmental sustainability. The buzzwords that are supposed to save the world are also energising dull companies and enriching investors. In the wake of unprecedented rises in energy and commodity prices as well as increasingly alarming findings about the impact of global warming, governments across the world are enacting tough laws and pledging billions of dollars to reduce global carbon emissions, mop up pollution and recycle waste. That's spurring investment in everything from the development of electric vehicles to wastewater-treatment plants. The current global market for green technologies has already swelled to US$850 billion ($1.18 trillion), according to some estimates, and could reach US$2 trillion by 2020.

As the race to get into the clean-technology space gets underway, some doomsayers are already drawing parallels with the dotcom mania 10 years ago and speculating darkly about an eventual crash. To be sure, some companies are displaying a dotcom-esque giddiness in their rush to get into the sector and trumpet the fact to the market.

A fortnight ago, **Asia Tiger Group**, a manufacturer of office equipment like paper shredders and laminators, announced it would be renaming the company The Think Environmental Co to reflect what Jimmy Kon, director of its green business unit, says is a "new strategic thrust in investing in and managing other companies and entities in environmentally sustainable businesses". What is to become of Asia Tiger's existing office-equipment business? "The board is evaluating strategic options," Kon says.

Asia Tiger has already made two acquisitions in the UK: Think Environmental, which has a waste-management site; and Think Greenergy, a waste-to-energy company. "The UK has some of the most stringent 'green' regulatory requirements in the world and there is strong political and legislative support for green initiatives," Kon says of the investments. "[They] also give us access to advanced technologies and capabilities that can be replicated in Asia."

Several other companies are leaping into the clean-technology sector even though their existing businesses have nothing to do with it. For instance, **C&G Industrial Holdings**, a China-based textiles maker that is struggling in the face of intense competition, is now in the midst of acquiring a waste-to-energy business. And, **Asian Micro Holdings**, which used

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COVER STORY

Stocks in clean-tech sector up

FROM PAGE 20

to service the hard-disk drive and semiconductor industries, is now modifying vehicles to run on compressed natural gas.

Yet, it might be unwise — or, at any rate, too early — to worry about a green bust before a green bubble has had time to fully inflate. For one thing, the move by governments and regulators towards tougher environmental protection standards is real. That's creating ready markets for some green products.

Building materials company **EnGro Corp**, for instance, makes ordinary Portland cement as well as an eco-friendly substitute known as ground granulated blastfurnace slag. This speciality cement, widely popular in the US and Europe, is gaining acceptance in Asia, says Vincent Loh, assistant manager of EnGro's knowledge department. But, sales of its cement are also being helped by new regulations. EnGro is one of three local cement players to be awarded Green Label certification by the Singapore Environmental Council. That puts its cement on the list of building materials that property developers can use to help earn a Green Mark from the Building and Construction Authority, mandatory for all new buildings as of April last year.

Moreover, some companies that are getting into the clean-technology businesses now really do have an edge. Ironically, those that might have ridden the technology boom a decade ago are well positioned now to hop on the green bandwagon. Optical-disc maker **Anwell Technology** is one example. The thin-film-coating technology at the core of producing DVDs and CDs is also used to make solar modules. And, Anwell's vertically integrated business model, where it produced optical discs as well as the machinery to make those discs, has given it useful experience to take on its latest venture.

Early this month, Anwell signed an MOU with **Solargen Energy**, a Nevada-based company whose shares trade over-the-counter in the US, to supply up to 1.25GW of solar panels for a large solar-farm project. Ken Wu, chief financial officer (CFO) at Anwell, says the company's vertically integrated model was the key to clinching the deal. "We are one of the few thin-film solar-panel manufacturers in China and the only one with a vertically integrated business model," Wu says. "Solargen selected us as a partner because they believe that, in the long term, [this model] will be a very good cost model."

Anwell has completed the construction of a 40MW solar plant in Henan, China and produced its first thin-film solar panel. The plant is undergoing testing and Wu expects production of solar panels will begin in 1Q2010. Over time, the company plans to scale up its capacity to 120MW, and it will need to raise money to fund the expansion. But, Wu is far more confident about tapping investors than he would be if Anwell were still producing only optical discs instead of solar panels.

"With what we have achieved, I think the share price has reacted positively," Wu says. "There are more investors and fund managers approaching us. So, I believe that when we start mass production early next year, we will be able to get enough funding for the increase in capacity."

Hui: I wanted a business... that had potential for significant returns

Wu: [Anwell is] one of the few thin-film solar-panel manufacturers in China

Willing investors

Indeed, the ability of green companies to easily raise money right now is another reason that investors shouldn't ignore the sector. While the locally listed companies that are moving into the green sector are a long way from being major players in this new field, their easy access to funding could carry them far.

Take, for instance, **Metax Engineering Corp**, an engineering company focused on water and wastewater treatment. Metax recently acquired a private company called WS Bioengineering, which specialises in constructing palm-oil-refining facilities and biofuel-refining facilities. Palm oil, like most other vegetable oils, is being used to make biodiesel for powering combustion engines. It is supposed to be a cleaner and more sustainable form of energy and growing demand has led governments, particularly those in major palm-oil-producing countries like Malaysia, to encourage the development of palm-oil biodiesel plants.

Through its interest in WS Bioengineering, Metax is now deepening its expertise in the sector. For instance, the company is currently conducting research into the treatment of palm-oil-mill effluent, a byproduct of palm-oil processing that poses environmental concerns because it releases methane gas. Tan Tze Wen, managing director of Metax, says the company is halfway through completing its studies on how to capture these gases, adding that the potential for the technology is huge. "There are at least 800 to 1,000 registered palm-oil mills in Malaysia and Indonesia alone," Tan says in a phone interview from Indonesia, where he is meeting with potential customers.

Metax doesn't have a lot of financial muscle, though. Earlier this month, the company's independent auditors highlighted that the company's net loss of \$4.9 million for FY2009 ended June, net current liabilities of \$2.8 million and cash flows used in operating activities of \$4.7 million cast significant doubt on its ability to continue operating as a going concern. Fortunately, Metax isn't short of investors willing to fund its new ventures.

Last month, the company said it would issue 89.9 million new shares and 40 million warrants to raise \$13.4 million from a group of investors. Among them is Ma Ong Kee, a self-styled environmental investor who is the largest shareholder of **China Environment** and who has also previously invested in **ecoWise Holdings**. Sunny Ong, director and founder of ecoWise, and Lee Thiam Seng, chairman and CEO, are also on Metax's list of new investors.

In fact, Metax is confident enough in its ability to obtain funding to go on the hunt for new investments and joint ventures in the green space. "When you're in this business, people like to talk to you," Tan says. "Yes, capital is required for investment into [the business], but there are enough parties who are willing to support it."

Tough to pick winners

Investor interest in clean technology is reflected in the share prices of companies that have declared their affiliation to this sector. The share prices of companies on *The Edge Singapore*'s green-tech list have on average risen 122.7% this year, outperforming the Straits Times Index (up 52.2%), the FTSE ST Mid Cap Index (76%) and the Small Cap Index (81.5%). The gains have varied widely within the sector, though. ecoWise, which recycles wood and horticultural waste as well as copper slag, has risen 346.2% this year; Asia Tiger is not far behind with a 288.2% gain. But, shares in Asian Micro remain unchanged year-to-date and **Centillion Environment & Recycling**, an electronic-waste recycler, has seen its stock rise just 18.2%.

So, how should investors pick winners in the clean-technology space for the long run? "A good green investment is the same as [any] good investment, with the additional attraction that the product or service being sold by the company will drive high and sustainable profit growth as a result of its green credentials," says Anthony Wilkinson, managing director of CRA Management, a unit of CLSA that manages four clean-tech funds.

"We look for good management — execution risk is a key issue, competitive advantage, margin upside, creditworthy balance sheets, good corporate governance and, of course, high growth," he explains. "Cash flow or earnings-based valuation is the next overlay, followed by risk assessment and liquidity." Wilkinson also adds that, although CRA does not limit investments to companies of a certain market capitalisation, it does take into account average daily trading volumes.

Who's going green

Although the local market is flush with water-treatment companies — including Hyflux and Epure International — there are few in other parts of the green-tech industry. Most of these names are small and have gone unnoticed because of their unexciting (or unprofitable) earnings profiles. That might change if they prove themselves capable.

COMPANY	WHY IT'S GREEN	PRICE ($)	MARKET CAP ($ MIL)	CHANGE YTD (%)
Anwell Technologies	Will soon start to manufacture solar panels and the machines that make them	0.53	133.7	176.3
Asia Tiger Group	Builds and integrates biomass power plants; also invests in other green companies	0.33	237.4	288.2
Asian Micro Holdings	Converts vehicles to run on natural gas	0.03	8.8	0
C&G Industrial Holdings	Plans to acquire a waste-to-energy-conversion company	0.20	91.3	129.4
Centillion Environment & Recycling	Owns and manages e-waste recycling facilities	0.01	80.9	18.2
China Environment	Treats waste gas to remove pollutants	0.65	415.7	468.8
Devotion Energy Group	Makes energy-saving central-heating infrastructure and related thermal equipment	0.08	15.6	33.3
ecoWise Holdings	Recycles wood waste, horticultural waste and used copper slag	0.29	190.4	346.2
EDMI	Makes energy meters	0.21	43.6	36.7
Epure International	Provides water and wastewater-treatment services	0.58	748.2	136.7
EnGro Corp	Makes green cement	0.88	103.2	54.4
Enviro-Hub Holdings	Does e-waste management	0.17	107.1	50.0
Equation Corp	Recycles and trades scrap metals and e-waste	0.06	108.4	112.1
Hyflux	Provides water and wastewater-treatment services	3.05	1,606.9	70.4
ITE Electric Co	Has an interest in a business burning organic agricultural waste to produce electricity	0.05	4.6	42.9
Lereno Bio-Chem	Produces biofuels	0.03	35.4	66.7
Metax Engineering Corp	Provides water and wastewater-treatment services, builds biofuel facilities and is studying treatment of palm-oil-mill effluent	0.24	31.4	33.0
Rowsley	Owns 51% of San Technology Pte Ltd, which is developing renewable energy and lubricating oil recycling businesses in China	0.10	88.7	204.3
Sunpower Group	Makes energy-saving products like heat exchangers and heat pipes	0.23	75.7	130.0
Swing Media Technology Group	Acquiring a company that installs solar systems for petrol stations in China	0.07	51.1	55.6

Tan: There are enough parties who are willing to support [this business]

Lin: As long as there are people, there will definitely be waste to convert

According to him, the projected earnings per share (EPS) growth of CRA's clean and green Asia-Pacific universe of over 700 stocks in 2010 averages 35%. And, he believes that growth in the sector is more sustainable than it was during the dotcom boom in the late 1990s, because it is being driven by global warming instead of consumer spending. "Even if the world stopped producing carbon dioxide today, the threat of climate change would remain because of what is already 'baked into' the system," Wilkinson says. "The longer the politicians dither, the greater the economic opportunity for investors, as the greater the capex required to reverse the trend."

Meanwhile, demand for renewable energy is being driven by determined government policy, he adds. "Many countries are implementing renewable energy projects as a way to gain energy security, which would be impossible if they had to continually import energy in the form of fossil fuels," he says.

That's not to say that all clean-technology stocks are attractive. Wilkinson says some fashionable plays like solar-power companies and electric-vehicle battery makers often get too hyped up, making them shorting opportunities for CRA's funds. Wilkinson is shorting Tokyo-listed battery company **GS Yuasa Corp** because the stock is "very expensive and is likely to fail to deliver on EPS expectations".

CRA also doesn't bother with unproven businesses or technologies. "Generally speaking, we don't like significant technology risk or negative free cash flow beyond the near term," Wilkinson says. He adds that CRA looks closely at each company's business model and technology before committing any money to it. "Clean coal is a good example — we like coal cleaning via briquetting and de-humidification; we don't like carbon sequestration as it is unproven and very expensive."

Two local stocks that CRA currently holds on behalf of its clients are **Hyflux** and **Epure International**.

Stay nimble

Much of what Wilkinson says is hard to apply to the small, concept stocks that have emerged in the local market, though. Most are tiny, have no track record in the green business and have poor cash flows and weak balance sheets. With these high-risk plays, investors need to follow developments closely and stay nimble. For now, most of them see only a host of new opportunities ahead.

Lin Yan, CEO and founder of CUGU EPIL, the waste-to-energy conversion company that textiles player C&G Industrial is acquiring, says the business of converting waste to energy is very stable. "As long as there are people, there will definitely be waste to convert," he says. CUGU has a plant in Jinjiang, China that converts waste into electricity and sells it to the national power grid. It also has plans to build several more such plants in China and one in Thailand.

"The Chinese government is supporting this industry, and the income is steady and recurring," adds Kevin Hui, C&G Industrial's CFO. At the moment, CUGU has a guaranteed buyer in the government, which will pay a premium for every watt generated. And, unlike companies that generate power from natural gas or coal, CUGU doesn't have to pay for its raw material. The government pays it to incinerate the waste and also delivers all the waste to its plant at no cost. "I don't have to buy raw materials and my overheads are fixed," says Lin.

Anwell's CFO Wu is similarly confident of his company's prospects in the solar business. "I believe that in the long run, solar will represent the biggest portion of clean energy," he says. "Sunlight is free of charge, and the supply is unlimited. And, as technology improves, the cost of solar cells will be driven down very quickly."

As for Swing Media, CEO Hui is convinced that its recent acquisition marks a new beginning. In the immediate term, the deal will actually lower the company's net tangible assets per share by 0.9% and cut its EPS by 1%. If Swing Media succeeds in installing its patented solar-power system in petrol stations across China, however, the business Hui built up by spending long hours hunting for cost savings, making cold calls as a salesman and asking bankers for credit might be in for a welcome change. ■

EDB backs clean technology to boost economy

Goh Chee Kiong has spent the last 12 years at the Economic Development Board, six of them working, in relative obscurity, with environmental and waste-management companies. "Back then, it wasn't glamorous at all," he jokes. Now, Goh is becoming a pitchman of sorts for Singapore's bid to attract green investments and turn itself into a hub for clean technology.

Just three weeks ago, Goh — who is director of clean tech for the EDB — gave a detailed presentation on the opportunities available for clean-tech companies in Singapore on **ABB**'s customer day, an annual event where customers and suppliers of the power and automation technologies provider network and learn about new trends and technology applications. Earlier this year, Singapore rolled out a $1 billion blueprint to build a greener and more energy-efficient nation. Some $700 million of that amount has been pledged to develop the clean-tech sector, which is expected to boost the city-state's economic output by $5.4 billion and create 20,000 jobs by 2015. By comparison, Singapore's two integrated resorts are expected to raise the country's economic output by $2.7 billion and generate 35,000 jobs.

There are two main segments to the country's vision for its clean-tech sector: clean-energy technologies, and addressing issues related to clean water and environment. It is approaching the development of these industries by attracting clusters of companies in each field to set up shop here, creating an ecosystem that makes it conducive to do business. Once there is a large enough number of companies operating close to one another, communication is easier and they are able to cut costs and save time. "There are operational synergies," Goh explains.

Proven strategy

This so-called "cluster development" strategy was used by Singapore in the development of its electronics manufacturing industry over the last two decades. It managed to attract companies of all sizes and in various parts of the tech sector. In the process, local entrepreneurs in the field emerged, spawning a large number of locally listed technology companies. The cluster development strategy also worked well in the development of the Jurong Island petrochemicals hub, which has made Singapore one of the largest refining centres in the world.

The EDB's most high-profile initiatives in the clean-tech field have been with heavyweight players like engineering company **Siemens**, oil major **Neste Oil** and conglomerate **General Electric**, to name a few. That makes sense because these big players can afford to make large investments that have a significant impact on the local economy. They can afford to hire more people and tend to generate lots of spin-off jobs and businesses for the smaller local companies.

Case in point: US-based filtration company **Pall Corp** established its Asia-Pacific headquarters here a fortnight ago. "Pall is a world leader in filtration technologies. It's going to hire 120 people over the next five years and those will be good-paying jobs. Most of them will be Singaporeans, and the company is engaged in advanced engineering activities," Goh says. Pall's chairman and CEO Eric Krasnoff, who was in town for the opening of the headquarters, says Singapore was really the only country that he considered for the establishment of its regional headquarters. "Its location and stability are very important," Krasnoff says. "And, almost all the major companies that are present in this area are customers of Pall."

The EDB's direction is also attracting the attention of investors. Anthony Wilkinson of CRA Management, which manages four clean-tech funds, says understanding the progression of policy is an important part of picking good companies. "We talk to governments, often local, to find out how policy directives are being implemented and actual profit and loss impact," he says. Among the locally listed companies that the EDB has been working with are **Hyflux**, **Keppel Corp**, **Sembcorp Industries** and **City Developments**.

There are potential drawbacks to betting on specific industries and rolling out a red carpet of favourable policies as well as outright subsidies to attract them. In the electronics sector, for instance, the hunt for lower costs eventually prompted many companies to move large swathes of their operations to countries like China and Vietnam. Will clean-tech companies that transplant their operations to Singapore one day also uproot them and move to lower-cost countries?

Goh: The transition [to solar-energy technology] is not that difficult

Competitive advantages

Goh insists that efforts by the EDB to develop new industries over the years have broadly been successful. And, while many manufacturing operations have decamped to China, a significant proportion of Singapore's GDP still comes from the technology manufacturing sector today. As for the clean-tech field, Goh says the EDB is initially training its sights on two areas: water and solar energy, where Singapore has specific competitive advantages.

"We've had water scarcity problems for a long time, but we've been able to overcome them and turn [the weakness] into a strength," Goh says. "We have a comprehensive water-management project and a water-leakage level of only 5%. That's one of the best in the world." Meanwhile, Goh points out that solar-energy technology is closely linked to semiconductors, a field already familiar to Singapore. "The transition is not that difficult. Also, Singapore is located within the heart of the Asian sun belt. In the medium to long term, there is a tremendous market."

In addition, Singapore's highly organised public-sector bodies as well as its reputation for protecting intellectual property are big advantages in its bid to become a green-technology hub, Goh says. "There is the ability of the government agencies to work together, which is a plus point because this needs to be a highly regulated market." Such seamless integration also helps to make the city-state more attractive as a "living lab" — a place that companies can use to test, develop and create solutions for the region.

After solar energy and water, the EDB plans to focus on four new growth areas: electric vehicles; smart electricity grids that can integrate renewable energy sources; green buildings that efficiently use scarce resources; and carbon services like carbon-management, financing and trading.

Goh, 37, a government scholar with a background in chemical engineering, says he wasn't particularly interested in issues like environmental sustainability. But, his job has changed that. "At home, I switch off the lights when I leave a room, which I never used to do," he says. "I also recycle a lot of paper." Now, he is winning over more companies and people to the cause.