

The escalating earthquake-related crisis at Fukushima's nuclear power plants has beyond adoubt caused panic. Not only has it sparked a new wave of criticism of nuclear energy, it's become a rallying cry to give solar energy a second thought. Freelance journalist Leila Chan Hiu-lui is one of the few in Hong Kong to experiment with solar energy in her new eco-village house in the New Territories. She's getting ready to install the familiar large solar panels on her rooftop to generate electricity to light up her garden.

"I would love to play with all kinds of renewable energy. Solar energy is only one of them," says Chan, who is moving into her new home this month. "Using solar heaters to boil water is what I would like to try in the future."

While tourists love the sun-kissed beaches of the city, researches have long suggested the abundant and readily available sunshine in subtropical Hong Kong is an asset. Over the past 20 years, Hong Kong has received an average of about 13 MJ/ m² of solar radiation every day according to the Hong Kong Observatory, compared to only 9 in London.

"Wind energy is less reliable in summer, even water flowing downhill from Victoria Peak is insufficient to generate electricity," explains Wallace Chan Siu-wai, scientific officer of the HKO. "Relatively solar energy has greater potential. If 10 percent of Hong Kong's total construction area is installed with solar panels, solar energy could account for about 4 to 5 percent of the city's energy consumption."

福島核電廠的地震危機不斷升級並且引起恐慌，它不僅引發了新一浪對核能的批評，更喚起人們提倡太陽能的運用。在香港進行太陽能實驗的人數很少，自由人記者Leila Chan便是其中的一位，她正準備於屋頂安裝常見的大型太陽能電池板，用以發電及照亮花園。研究早已指出，位於亞熱帶的香港容易得到充沛的陽光，而這本身已是一種天然的資源。過去20年間，香港天文台錄得每日平均約13兆焦耳/平方米的太陽輻射，而倫敦則只有9兆焦耳/平方米。

香港天文台科學主任Wallace Chan指出：「風力能源在夏天是不可靠的，甚至從太平山頂下竄的流水所形成的水力亦不足以產生電力。反而太陽能則有很大的潛力，如果在百分之十的香港總建築面積上安裝太陽能電

Sun Powered 太陽能裝置

A Japanese near-disaster has many wondering if solar's time has come
重新探討採用太陽能的可能性

Text : Jennifer Lo | Photo : www.thinkstockphotos.com |



The most common ways in Hong Kong to exploit solar energy is either generating electricity from solar photovoltaic, or boiling hot water with a solar heater. It's not hard to spot some of the photovoltaic installations around town, from the solar lamps in Hong Kong Park to the rooftops of public facilities like Science Park, Kowloon Hospital and the Museum of Art.

Last year, Hong Kong's first standalone solar energy power system was built on Town Island in Sai Kung to tap this natural resource. CLP used more than 100 solar panels to replace three diesel electrical generators, supplying power to the chapel, kitchen and dormitory to a drug rehabilitation centre. However, the use of solar energy is still far from popular in households. A major challenge is the rigid architectural design of most existing residential blocks. "Even squeezing out space for the large panels can be difficult, not to mention whether ceilings can support those heavy panels," points out the HKO's Chan. Multiple ownership in residential

buildings is another headache, as consensus is hard to reach, and living green does come with a cost. "The cost [of solar energy] is comparatively higher than traditional electricity generation, thus making the payback period longer," CLP admitted. "Hong Kong's solar energy market is still at its start-up stage." A solar energy system worth \$3 million was recently installed in a Lam Tin public housing estate. It's expected to reduce annual electricity bills by \$43,000 but will take the government a ridiculous 70 years to break even.

"Technological advancement is the key," says Chan. "But it takes time, too," he continues, listing research exploring various possibilities like energy-absorbing paints and a polymeric photovoltaic solar thin film, which could be stuck on walls and windows. "Perhaps one day a heavy solar panel will become as thin as the retina display on your iPhone. Who knows?" Don't forget: electricity itself was once fantasy. 📍

池板，太陽能便可抵銷整個城市4%至5%的能源消耗量。」利用太陽能電池板發電，或使用太陽能熱水器燒開水是香港最常見的方式，而太陽能電池板裝置亦越趨普遍，例如香港公園的太陽能燈、及一些公共設施之屋頂如科學園、九龍醫院及藝術博物館等均有安裝。

去年，用以開拓自然資源的首個獨立太陽能發電系統已於西貢的晨曦島建成。中電運用超過一百個太陽能電池板取代三座柴油發電機，供電予一所戒毒康復中心的教堂、廚房及學生宿舍使用。然而，要引用太陽能發電於一般家庭仍是未能普及，這主要是因為現今大部份住宅大廈的建築設計都不太適合裝置太陽能電池板，天文台科學主任Wallace指出：「要騰出空間放置電池板已很困難，更遑論計算大廈天花板可否承托其沉重的重量。」此外，住宅大廈複雜的業權也是另一難題，業權人往往都難以達到共識，而且，成就「綠色生活」也需額外的成本支持。中電承認，發展太陽能之成本相對於傳統發電為高，投資回本期亦會較長，香港的太陽能市場仍處於起步階段。最近耗資300萬元於藍田公屋安裝了太陽能系統，預計每年可減少電費43,000元，換言之，政府須用70年的時間才可達到收支平衡，這麼長的投資回報期實是荒謬。

Wallace稱：「科技進步是重要的，但同時也很費時。」他續稱現時亦有若干可行的研究正在進行中，例如可吸收能源的油漆和可聚合太陽能的薄膜，可以於牆壁及窗戶上使用。然而科技的發展一日千里，也許一天，沉重的太陽能電池板的面積將細小如iPhone的顯示屏吧。📍