

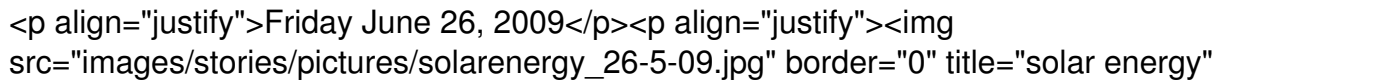
## Solar power is not the way to go

Written by 3K Admin

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I REFER to ♦Go for solar power, not nuclear energy♦ (The Star, June 25), in which Dr Ahmad Shadzli, director of GREEN of Bangi, questioned whether TNB has made any detailed study on the viability of solar energy.

Let♦s take the case of the Nevada Solar One in the United States, which is one of the largest solar power plants in the world. It has a nominal capacity of 64 megawatts (MW). However, as in all solar power systems, that rated capacity is deceptive. By late evening as the sun goes down, the electricity production drops to zero. Consequently, the Nevada Solar One is generating an estimated average of 370,000 kilowatt-hour (kWhr) per day, which is equivalent to a 16MW (not 64MW) diesel-powered generator. In other words, the actual production of the solar power plant is only 25% of the claimed capacity of the plant.

In fact, the world♦s largest solar power plant in Jumilla, Spain (photovoltaic type power plant) is only rated at 23MW despite its much higher nominal rating. That actual capacity is hardly enough to provide electricity for the city of Shah Alam.

The writer contended that a 1,000MW nuclear power plant is expensive but he did not say how expensive solar power plants are. The Nevada Solar One plant costs US\$266mil (RM957mil).

Dr Ahmad advocates installing solar panels on 40% of the nation♦s house roof-tops. But what is the cost? A household photovoltaic (PV) system rated at 90kW can only produce a daily average of 31kWhr per day, making it effectively only a 1.3kW (not 90kW) generator. The cost of the above system is RM250,000 to RM290,000.

However, this capacity is only sufficient to safely start and run a single 1-HP (horsepower) air conditioner and a few light bulbs. If you start an electric kettle while the air conditioner is running, the system will trip.

Assuming a TNB tariff rate of 22 sen/kWhr, an electricity consumption of 31 kWhr per day would cost RM6.82. Thus the cost of the household PV system would be able to pay the TNB bill for at least 100 years! I don♦t know about you, but I would rather pay my electricity bills. In addition, installation of such PV systems on 2.5 million households as advocated will cost a staggering RM625 trillion!

The Nevada Solar One solar panels cover a net area of 1.2sq km for a rated capacity of 64MW.

Therefore, to have a plant with a capacity of 1,000MW you would need an area of 18.8sq km, about the size of a small town.

Bearing in mind that the solar power panels are only 25% efficient relative to the quoted capacity, you would actually need an area bigger than Shah Alam city (55sq km). The cost of acquiring the land itself will run into billions.

The large solar power plants, like Nevada Solar One or Jumilla, actually require back-up power from natural gas heaters to keep the working fluids flowing. A lot of batteries are required to store the electricity, and a lot of electrical equipment will be needed to synchronise the erratic power supply into the TNB main grid.

On the contrary, the new fourth-generation nuclear reactors, such as the modular high temperature reactors of the pebble bed are more practical.

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Source: <a href="http://thestar.com.my/news/story.asp?file=/2009/6/26/focus/4197991&sec=focus">http://thestar.com.my/news/story.asp?file=/2009/6/26/focus/4197991&sec=focus</a>