

Report on Talk on Innovative Solar Energy Technology Applications

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A talk on Innovative Solar Energy Technology Applications was held on 12 May 2007 at the IEM's Hall. The talk was delivered by Prof. Dr Mohd. Yusof bin Hj. Othman who is one of the solar experts in the country and has started doing research in solar field since the early 80s. Currently Prof. Dr. Mohd. Yusof bin Hj. Othman is the Director of Islam Hadhari Institute of UKM.

The talk started at 9.30 a.m. and was assisted by power point presentation. Prof Dr Mohd. Yusof started with basic information on solar energy which can be classified into solar thermal and solar photovoltaic. Since Malaysia is located near the equator, it is timely that the solar energy is given its due attention and fully harnessed as it is the world's most abundant permanent source of energy.

In remote applications, solar power via photovoltaic panels is often less expensive than extending power lines. Photovoltaic panels produce electricity that can power farm operations and remote water pumps, lights, and electric fences. Buildings and farms can be renovated to capture natural daylight, instead of using electric lights. With the annual energy yield of 12,000 kWh/kWp, it can be estimated that the Building Integrated Photovoltaic (BIPV) potential is 11 GigaWatts (GW) peak or 12 TWh which covers 20% of the national energy demand.

Whereas there is a bigger potential for solar hot water heating systems which could cater the commercial and industrial sector as well as hospitals. By considering the lower value of 0.7kWth per square metre of these sectors buildings, the potential energy is 75 GWth. The estimated systems payback is about 4 years and can be replicated in over 100 hospitals and hotels with business opportunities of RM 200 million.

In the agricultural sector, solar drying technology has been applied for ages especially using the sundry technique but this technique is not optimised and clean as the drying time could take up to



Full attention during the talk

6 days and the drying area is open. With improvements in solar heat collectors, the drying duration can be shortened and the product is cleaner as the drying chamber is enclosed. Some of the potential applications are for banana, noodles, and anchovies drying.



Engr. Juares Rizal bin Abd. Hamid presenting a memento to Prof. Dr Mohd. Yusof bin Hj. Othman

The presentation also covered various innovative solar energy technology products suitable for the applications in the agricultural sector that has been developed by the Solar Energy Research Institute (SERI) in Universiti Kebangsaan Malaysia. The products are solar dryers, solar water heaters, solar water pumping system and solar fish feeding system.

There are various types of solar dryers

developed by SERI namely (a) V-groove collector dryer suitable for drying temperature between 50- 60 °C, (b) Double-pass collector with integrated storage system for drying higher than 60 °C, (c) photovoltaic thermal collector solar dryer and (d) solar assisted dehumidification system for medicinal herbs.

The presentation also highlighted future directions in solar energy applications and strategies for the widespread applications of such technologies especially in combating global warming and depletion of fossil fuel resources.

As a conclusion, the advantages in applying solar energy technology is that it could save money by reducing electricity and energy bills, increasing self-reliance and also helps in reducing pollution.

The talk was well received and about 100 participants attended it and continued with a number of interesting questions from the floor such as research grants and potential collaboration. The talk ended at about 11.30 a.m.

On behalf of IEM's Chemical Engineering Technical Division, Engr. Juares Rizal Abd Hamid presented a token of appreciation to Prof. Dr Mohd. Yusof bin Hj. Othman and thanked him for his most informative lecture. ■