Role of Feed-In Tariff Policy In Promoting Solar Photovoltaic Investments In Malaysia: A System Dynamics Approach

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ABSTRACT

Solar photovoltaic has shown a significant rise in terms of worldwide installation. One of the main reason is due to the introduction of the FiT (feed-in tariff) policy by the governments. This paper aims to evaluate FiT policy in promoting solar PV (photovoltaic) investments in Malaysia by using a dynamic systems approach. The assessment model captures the complexities arising from the interaction of FiT rate dynamics, construction delays, and investors' and technology learning dynamics in an integrated framework. The model provides total operational PV capacity, amount of finances needed to support the policy, and the cost of environmental savings, as output. Computer simulations, based on twelve scenarios, were used as a means to study the model behaviour. For the most favourable scenario, a total capacity of about 16 GW PV by 2050 can be expected, while for the least favourable scenario, expectations would be only about 10 GW. On the expenditure side, the most favourable scenario can cost up to MYR (Malaysia Ringgit) 15 billion, whereas, for the least favourable ones, the cost can be as low as MYR2 billion. The maximum cost of CO_2 abatement can vary from MYR 0.05 per kg-CO_2 to the lowest value of MYR 0.02 per kg-CO_2.

KEYWORDS: Feed-in tariff; System dynamics; Solar PV; Malaysia

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