A model to analyze strategic products for photovoltaic silicon thin-film solar cell power industry

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Abstract

With natural resource scarcity and environmental protection, the use of renewable energy has become a promise for offering clean and plentiful energy. Photovoltaic (PV) solar cell is one of the emerging renewable energy applications; however, it suffers a large difficulty in high production cost with low conversion efficiency currently. Hence, an urgent pressure to upgrade technology and to formulate product strategy is evident in the solar cell power industry. In order to prosper PV silicone solar cell power industry, the paper develops a conceptual model, which is composed of a fuzzy analytic network process with interpretive structural modeling and benefits, opportunities, costs and risks, to help analyze suitable strategic products. The empirical study shows that the conceptual model can effectively and precisely handle such a complicated problem and can lead to an outstanding performance result.

Keyword：Photovoltaic (PV) Solar Cell Industry; Fuzzy Analytic Network Process, FANP; Interpretive Structural Modeling (ISM); Product Strategy