Based on a diamond model study to analysis performance of solar PV development in China

Lihua liang

Institute of Policy and Management, Chinese Academy of Sciences,
Beijing 100190, China
University of Chinese Academy of Sciences ,Beijing 100190, China

Abstract—**In china over the recent years, solar energy and other renewable energy sources have been expected to become not only promising tools against climate change but also a key economic growth driver. Particularly, growth of Chinese photovoltaic cell makers has attracted global attention .However, the Chinese government has been unable to provide sufficient support for them because of huge fiscal costs. China' PV market is still inactive. China has to admit the gap with foreign leading countries, mainly in technical R&D and technology research in PV industry. This paper attempts to attempts to formulate an analytical model for studying and assessing factors that have significant impacts on the local industry. An improved dynamic diamond model is developed to help the international community to understand the status quo of the Chinese PV industry. in order to build a stronger solar PV industry, the elements identified in the model need to be strengthened.**

Keywords- PV industry; improved dynamic diamond model;

I. INTRODUCTION

Compared to conventional generation technologies, renewable power generation has enormous potential and will be more competitive in the long term. In order to cope with rising electricity prices and the growing demand for electricity in the country, the National People's Congress reiterated in 2011 the strategic importance of renewable in its 12th Five Year Plan (2011-2015). Now the market is finally starting and the country is home to the largest PV power plant in operation (200 MW).

From 2010 China become the world's largest PV module producer. In 2010, China's solar cell production reached 13 GW, battery components production rose to 10 GW, accounting for 45% of world production, solar cell production ranks first in the world for five consecutive years. China's PV market also started 500 MW installed photovoltaic power generation in 2010, to reach a total of 900 MW.

However, due to lack of efficient technologies and sufficient funds, China'PV industry has not been developed effectively, this paper aims to analyze the competitive of china's PV industry using an improve dynamic diamond model. The analysis also educes applicable recommendations to impetus china's PV industry.

II. METHODOLOGY-IMPROVED DYNAMIC DIAMOND MODEL

Porter's diamond model is an effective methodology to analyze the competitive advantage of a national industry or an enterprise. It comprises four major components, namely factor condition; demand condition; related and support departments; and firm strategy, structure and rivalry ;as well as another two accessorial factors; government and chance[1].factor conditions often provide initial advantages, including human resources, capital resources, natural resources, infrastructure, etc. Demand conditions are measures of sophisticated and demanding local customers. They influence the pace and direction of innovation and product development. Related and support departments are measures of access to capable, locally based suppliers and firms in related fields and presence of industry clusters. When local support industries are competitive, firms enjoy more cost effective and imitative inputs. Firm strategy, structure and rivalry are the local context and rules that encourage investment and sustained upgrading, the incentive systems across all major institutions, and the open and vigorous competition among locally based rivals [1].

This paper develops an improved dynamic diamond model to study china' solar PV industry (see fig.1).the developed model defines government as the fifth determinant rather than a secondary element, which is different form porter's diamond model. This is due to the role of the government being not only the leader and facilitator for the reform of the electric power industry, but also being the executive of strategies and regulations. Therefore government plays s a vital role in the model and has a direct influence on other elements.

Moreover, in order to better analyze the dynamic competition in the solar PV industry, one key factor-technology is incorporated into the model as an intermediate variable [2].

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